ORDER NO. KM48905914C1
F1

Service Manual

and Technical Guide

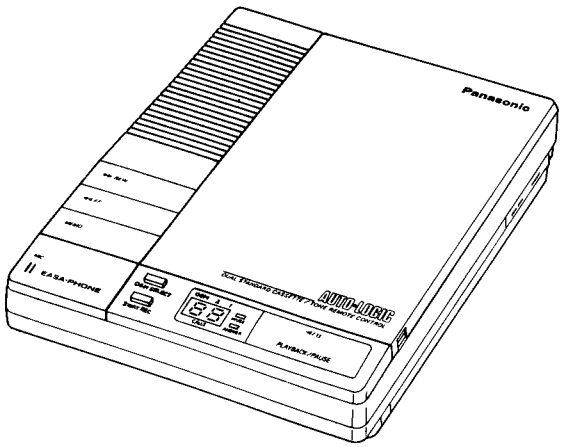
Telephone Equipment

KX-T1455

AUTO-LOGIC™

EASA-PHONE

AUTOMATIC TELEPHONE
ANSWERING SYSTEM



■ SPECIFICATIONS

Power Source:	AC adaptor (13 V, DC)/KX-A11
Outgoing Message (OGM):	C15 regular cassette 2 mode (OGM1, 2) (Variable, up to 30 seconds)
Incoming Message (ICM):	C-60 regular cassette: selectable recording times (A0/1 MIN/VOX)
Tape Deck:	Logic control dual cassette system
Ring Control:	2/4/Auto
Power Output:	350 mW max. across the monitor speaker
Monitor Speaker:	2" PM dynamic (8 ohm)
Microphone:	Condenser microphone
Connection:	2 built-in modular jacks, DC-IN jack
Dimensions:	$6\frac{9}{16}$"×$1\frac{31}{32}$"×$7\frac{7}{8}$" [167 (W)×50 (H)×220 (D)] mm
Weight:	1 lb 15.39 oz (890 g)

Design and specifications are subject to change without notice.

MC-Service

Panasonic

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Division of Matsushita Electric
Corporation of America
50 Meadowland Parkway,
Secaucus, New Jersey 07094

Matsushita Electric
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When referring to the serial number, supply all 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

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LOCATION OF CONTROLS

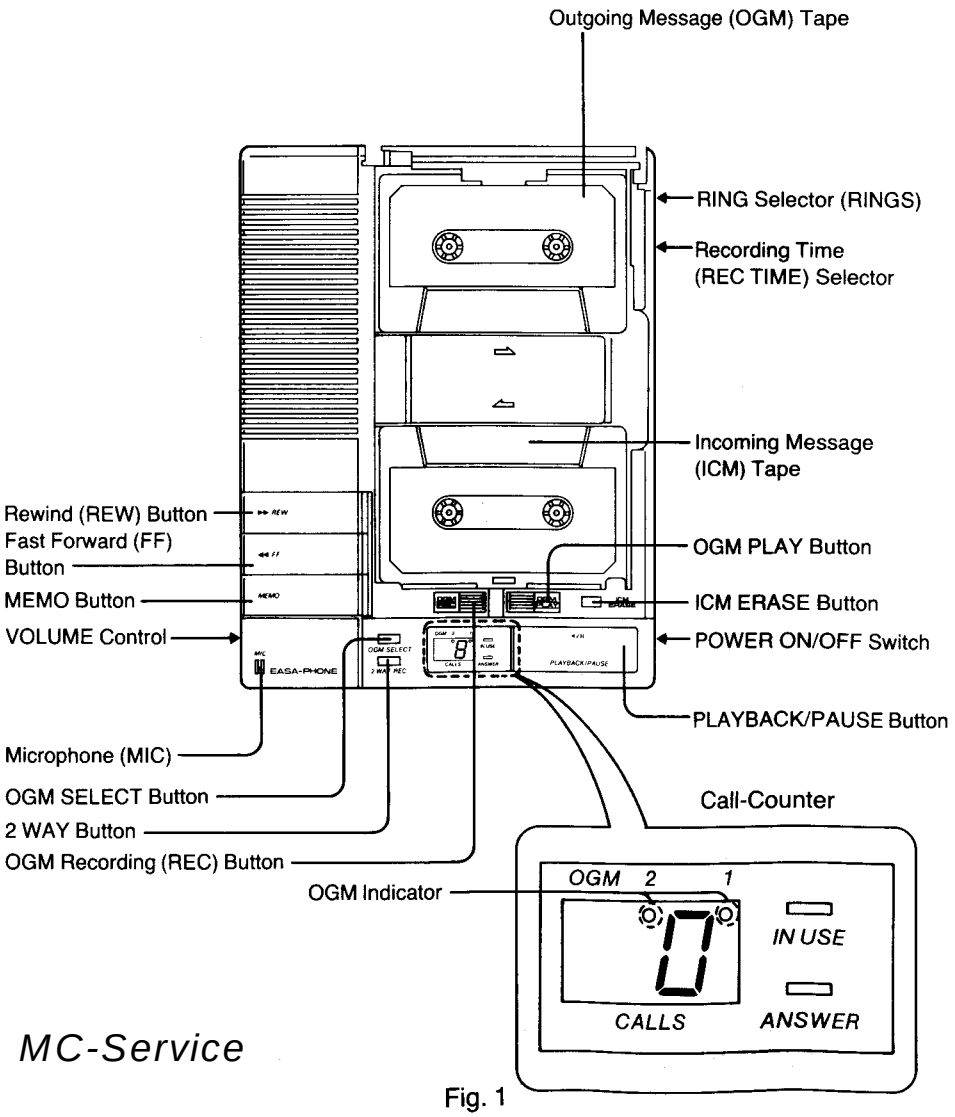


Fig. 1

MC-Service

DISASSEMBLY INSTRUCTIONS

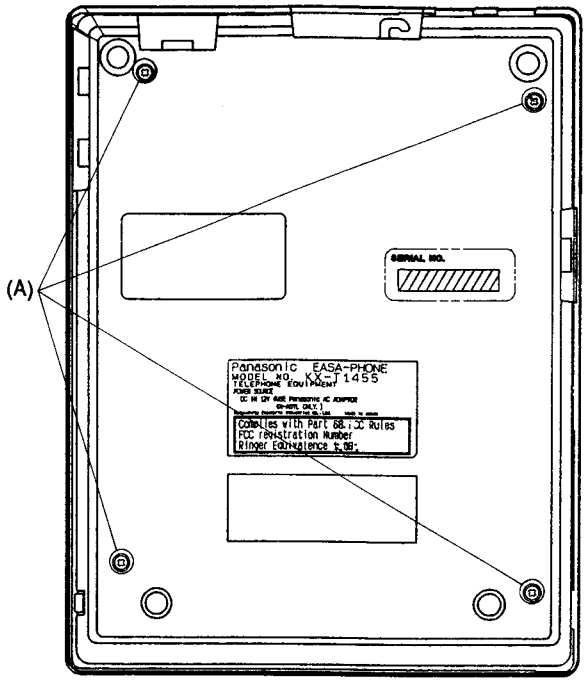


Fig. 2

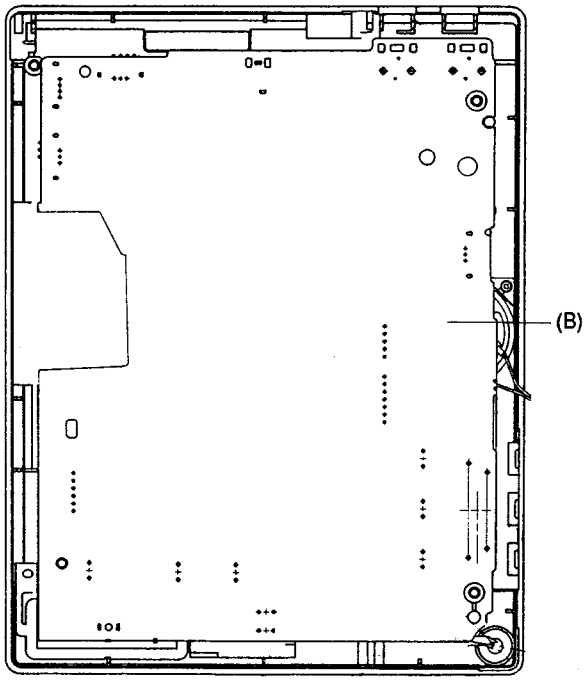


Fig. 3

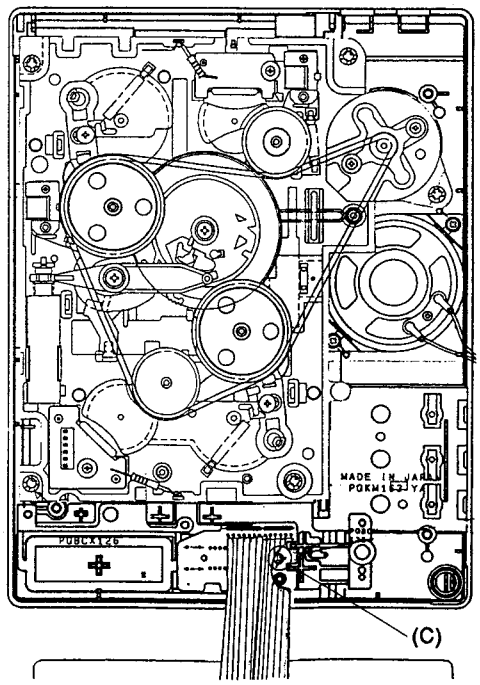


Fig. 4

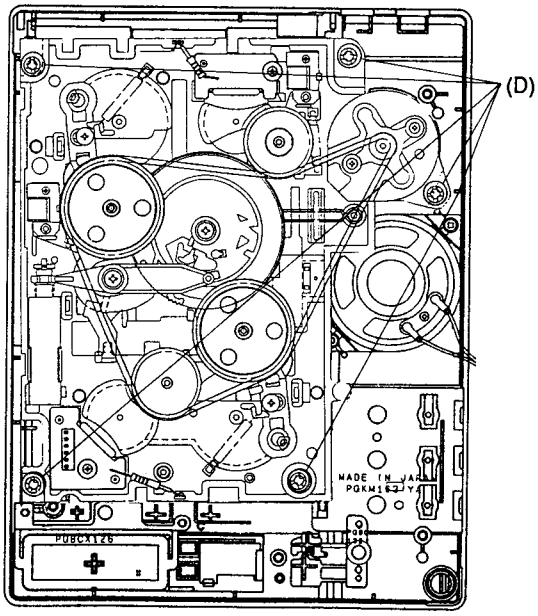


Fig. 5

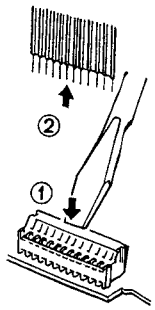
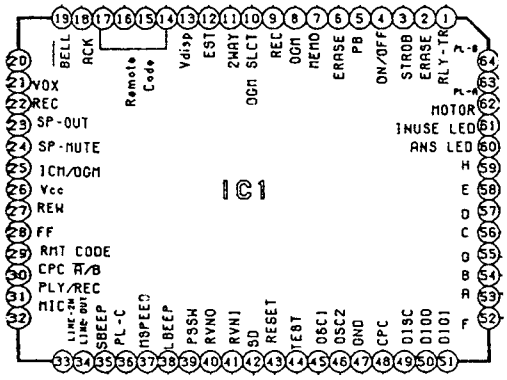


Fig. 6

Procedure	To remove —.	Remove —.	Shown in Fig.—.
1	Lower Cabinet	Screws (3 x 16) .....(A) x 4	2
2	Printed Circuit Board	Remove the main P.C.Board.....(B)	3
3		Sub. P.C.Board (3 x 8) .....(C) x 1	4
4	Cassette Deck	Screws (3 x 10) .....(D) x 5	5

Note: When removing the connector leads, remove the connector as shown in Fig. 6.

CPU DATA



Part No: PQVI4042FJ91
Power Supply: 5±0.5 V
Program ROM: 4096×10 bit
Inside Data RAM: 256×4 bit

Pin	Function	High	Low	Pin	Function	High	Low
1	RLY-TR	ON		33	Line in	ON	
2	Erase	ON		34	Line out	ON	
3	Strobe	Active		35	S Beep		Normal
4	On/Off			36	PL-C	ON	
5	Playback			37	M Speed		Normal
6	Erase			38	LBeep		Normal
7	Memo	ON		39	PSSW	Normal	
8	OGM			40	RVN OGM		
9	REC			41	RVN ICM		
10	OGM select			42	SD		
11	2 Way			43	Reset		
12	EST			44	Test		
13	Vdisp			45	OSC1		
14	Remote Code (0~9)	bit0		46	OSC2		
15		bit1		47	GND		
16		bit2		48	CPC	Enable	
17		bit3		49	DSC	Enable	
18	ACK			50	DIGO		
19	$\overline{\text{Bell}}$		Enable	51	DIG1		
20	AC down		down	52	F		
21	Vox	Disable	Enable	53	A		
22	REC			54	B		
23	SP-out	ON		55	G		
24	SP-mute			56	C	ON	
25	ICM OGM	ICM	OGM	57	D		
26	+ power source			58	E		
27	REW		ON	59	H		
28	FF		ON	60	Answer LED		
29	Remote code	6	1	61	In Use LED		
30	CPC AB	A	B	62	Motor		
31	Play Rec	Play	Rec	63	PL-A		
32	MIC	ON		64	PL-B		

BLOCK DIAGRAM

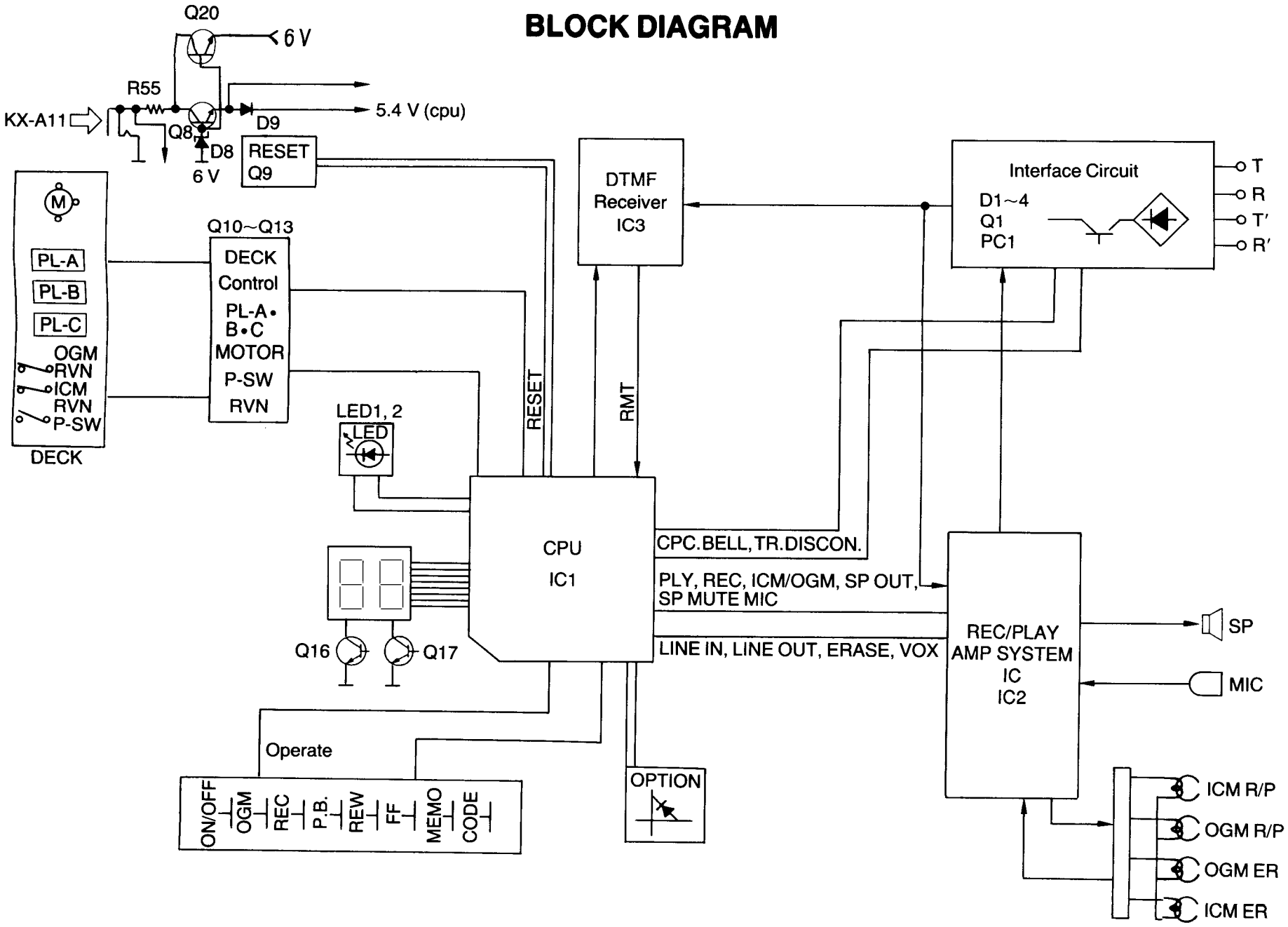


Fig. 7

IC BLOCK DIAGRAM

IC2 AN6180K

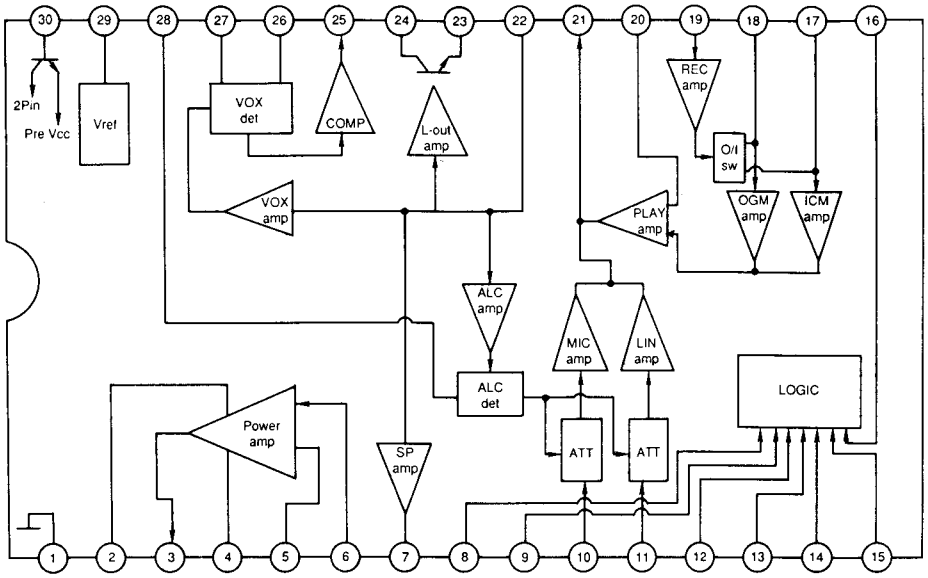


Fig. 8

ACCESSORIES AND PACKING MATERIALS

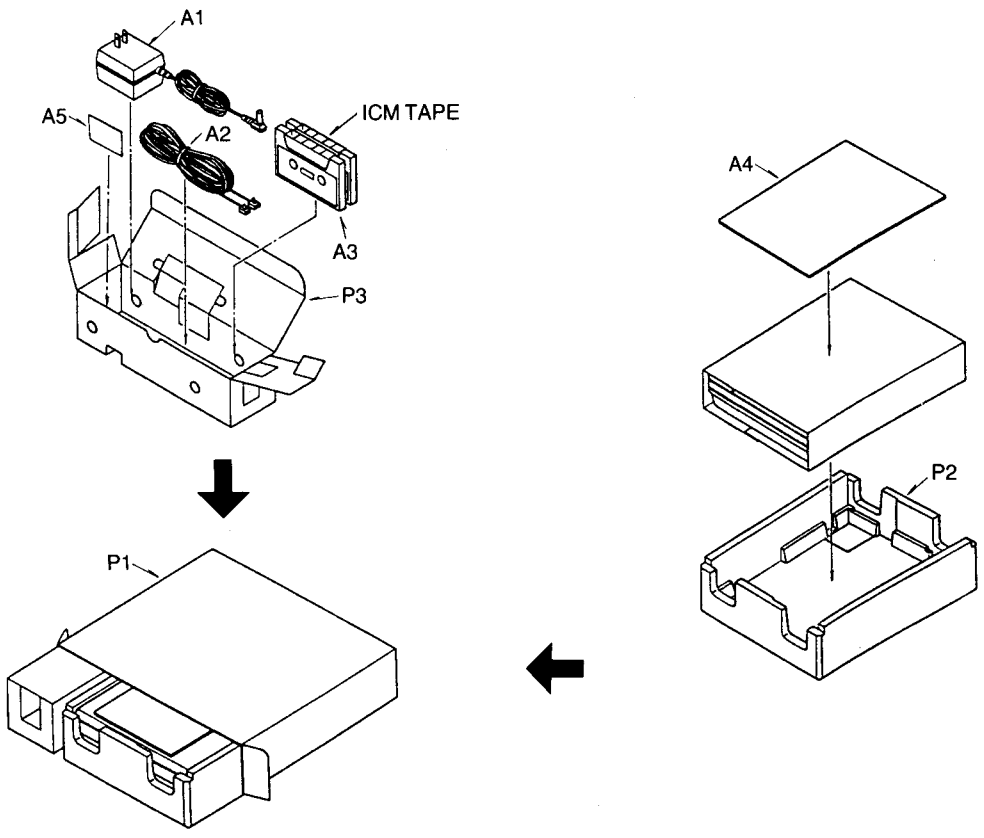


Fig. 9

MEASUREMENT AND ADJUSTMENT METHOD

Notes: 1. Make sure the heads are clean.
2. Make sure the capstan and pressure roller are clean.
3. Room temperature for measuring and adjusting: 20±5°C (68±9°F)
4. Test equipments are not treated as replacement parts.

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Head azimuth adjustment	**A. Record/playback head for incoming message cassette** 1. Playback test tape (QZZCWAT 3 kHz) 2. Adjust screw (A) shown in fig. B for maximum output at SP terminal. (Test equipment connection is shown below.) Fig. A SP terminal Test tape Playback mode VTVM Oscilloscope **B. Record/Playback head for outgoing message cassette** 1. Playback test tape (PQJN17Z 3 kHz) 2. Adjust screw (A) shown in fig. B for maximum output at SP terminal. (Test equipment connection is shown in fig. A)	• Record/playback head for incoming message and outgoing message. (A) Fig. B

CONNECTION

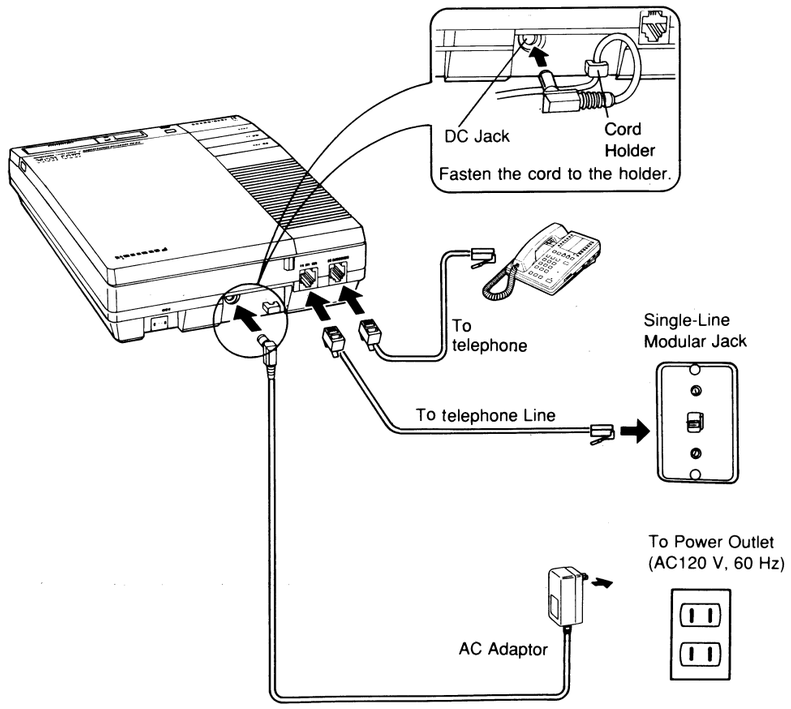
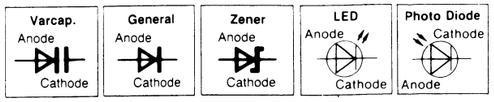


Fig. 10

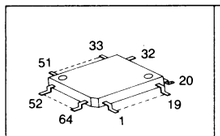
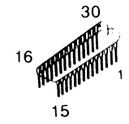
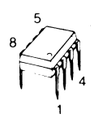
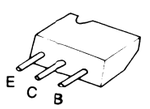
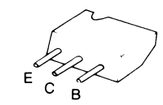
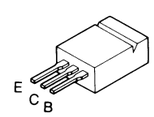
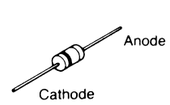
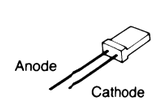
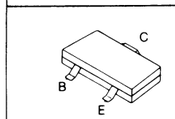
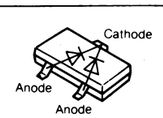
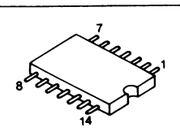
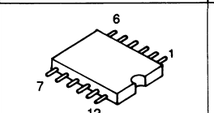
■ FOR SCHEMATIC DIAGRAM

Important safety notice
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When sevicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

Note:
1. S1 Recording time selector switch in "VOX" position.
2. S4 Ring selector switch in"AUTO" position.
3. S3 CPC selector switch in "A" position.
4. S2 Remote code selector switch in "ALL ZERO" position.
5. S5 Power ON/OFF switch.
6. S6 OGM play switch.
7. S7 OGM recording switch.
8. S8 Playback/Pause switch.
9. S9 Rewind switch.
10. S10 Fast forwad switch.
11. S11 Memo switch.
12. S12 ICM erase switch.
13. S13 2 way switch.
14. S14 OGM select switch.
15. S101, 102 Reed switch.
16. S103 Head position switch.
17. DC voltage measurements are taken with electronic voltmeter from negative line.
18. This schematic diagram may be modified at any time with the development of new technology.



TERMINAL GUIDE OF ICs, TRANSISTORS AND DIODES

 PQVI4042FJ91	 AN6180K	 PQVIMT3074AE	2SA1625 2SC2120 PQVTKSD261CY	 2SD662B 2SD1994A
 2SC3330 2SA1317	 2SD2136	 MA4180	PQVD1N4004 1SS131 1S2076 PQVDHZS2B1 PQVDMTZ6R8 1SS119	 LN310GPX LN210RPX
 2SC1623	 MA151WK MA151K	 PQVINJ4069BM	 PQVITC4040BF PQVITC4001BF	

EXTENSION CABLE CONNECTING METHOD

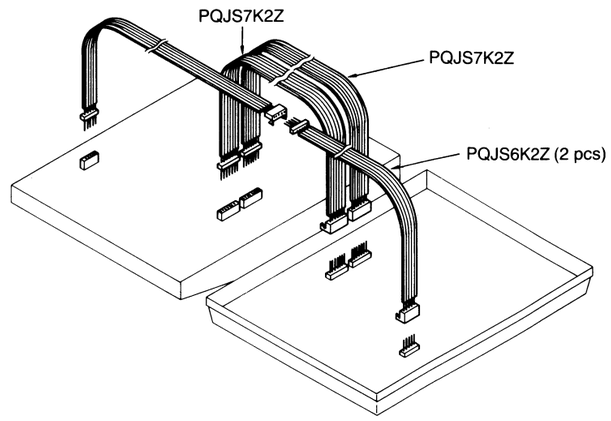
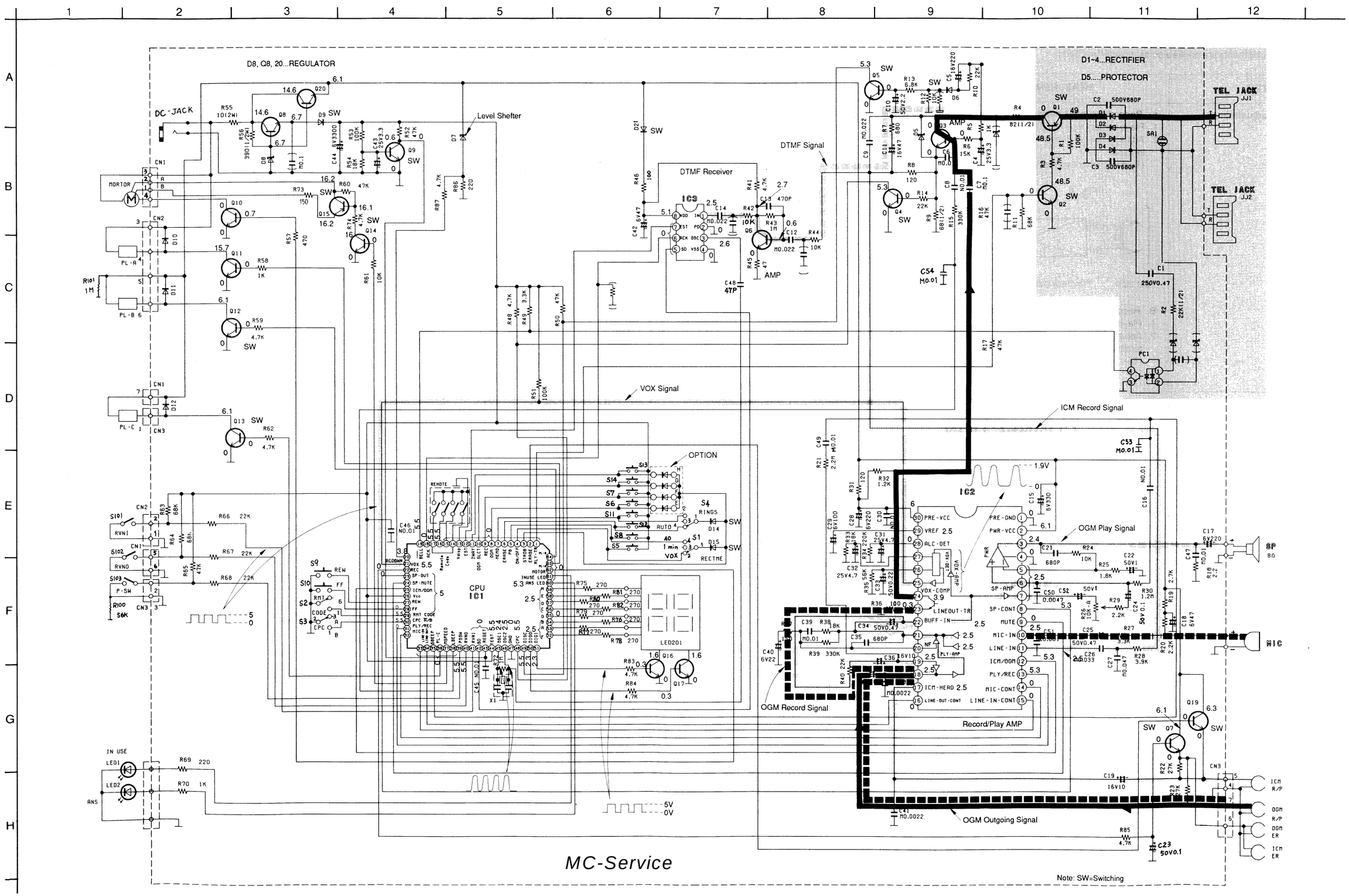


Fig. 11

SCHEMATIC DIAGRAM



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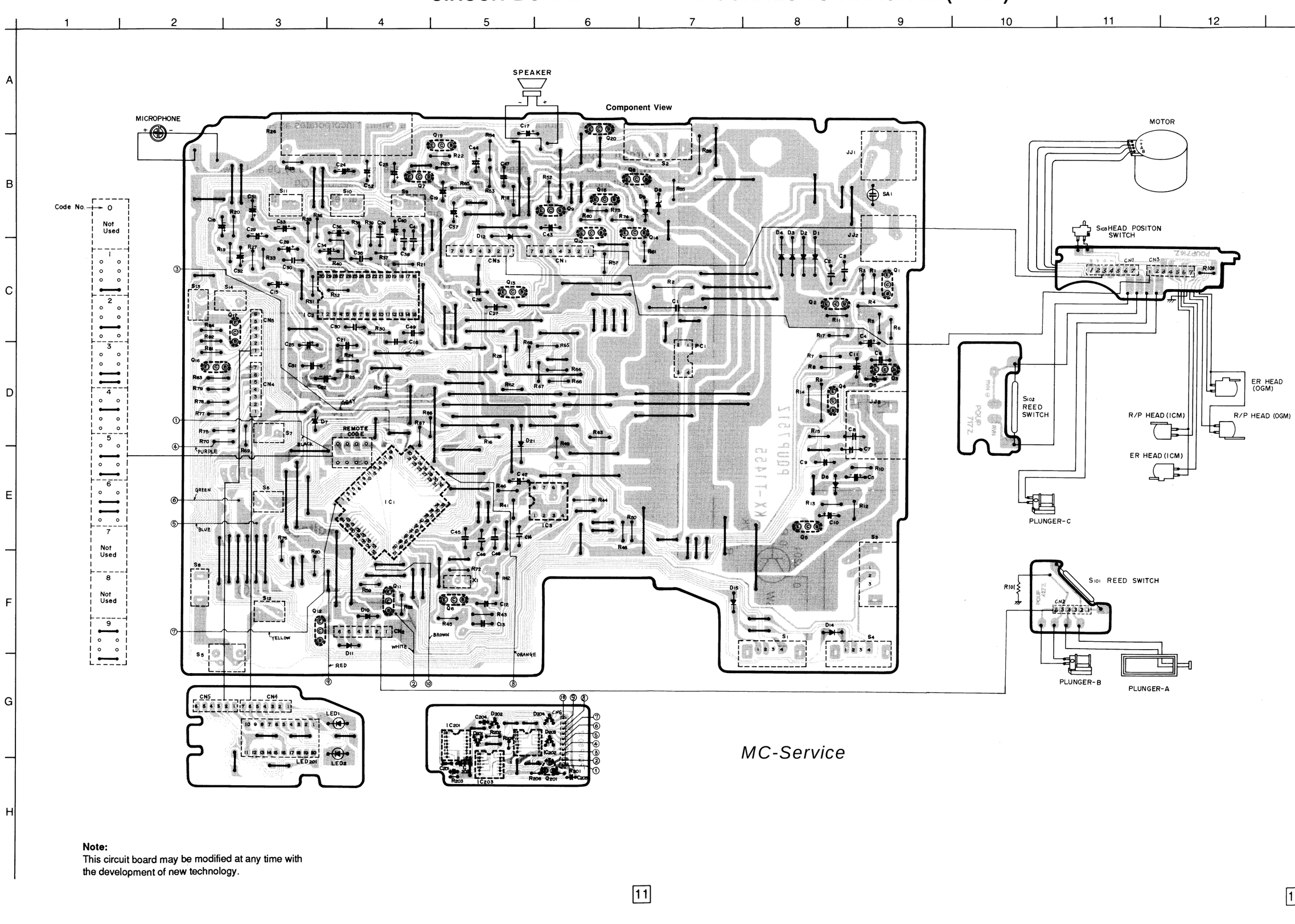
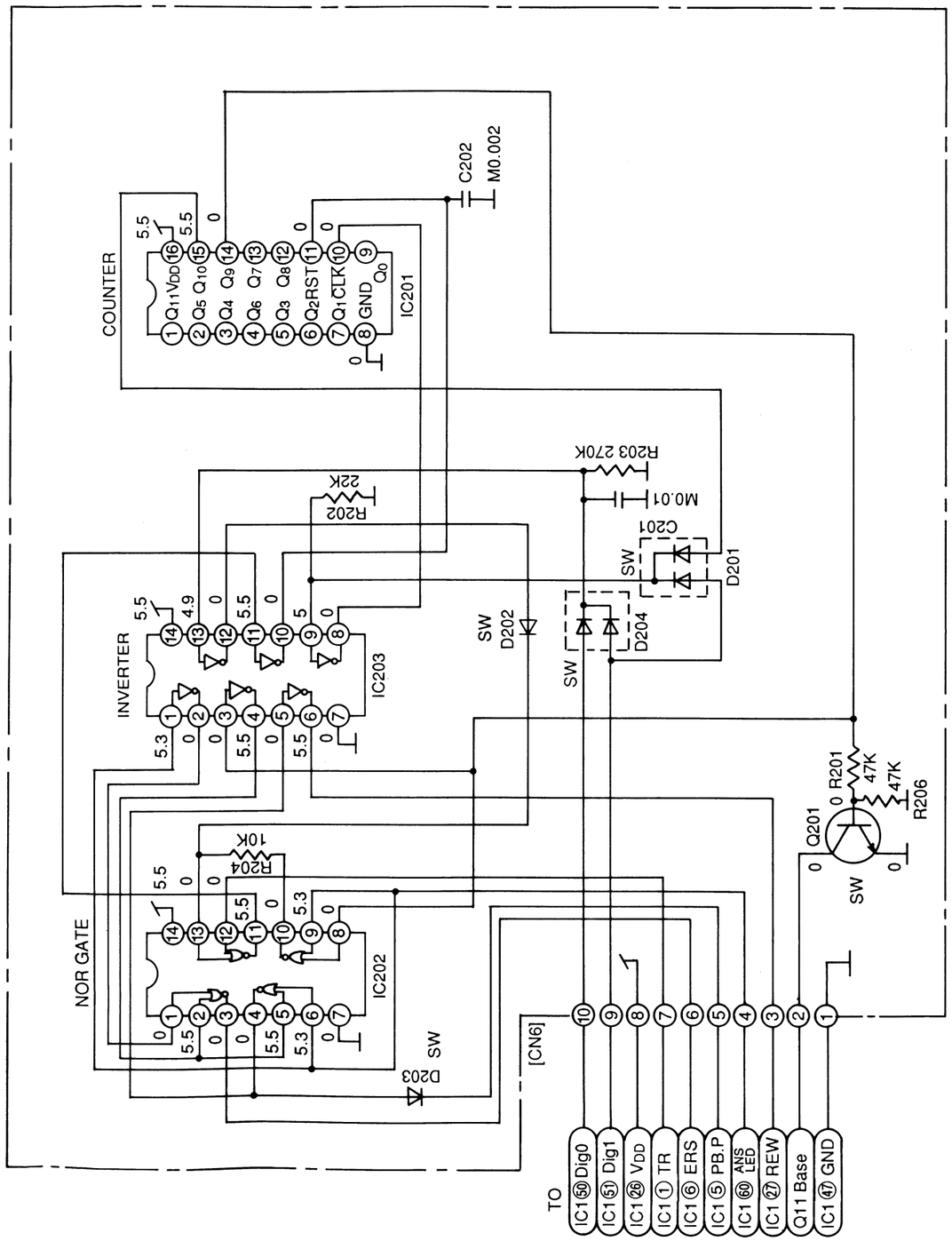
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (MAIN)



Note:
This circuit board may be modified at any time with the development of new technology.

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (SUB)



CIRCUIT OPERATIONS

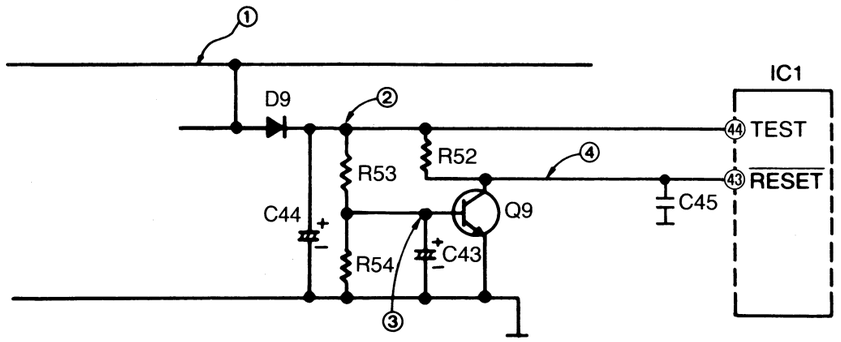
Note:
The circuit diagram may be modified at any time with the development of new technology.

■ INITIALIZE CIRCUIT

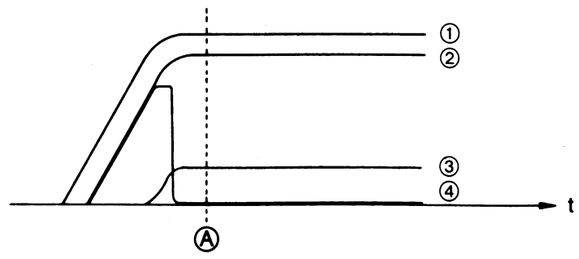
Function:
This circuit is used for initializing the microcomputer when it incorporates an AC adaptor.

Circuit Operation:
When the AC Adaptor is inserted into the unit, then the voltage is shifted by D9 and power is supplied to the CPU.
The voltage needed to reset the CPU is supplied from the collector of Q9.
When the reset terminal voltage drops below the voltage at resistor R53, the CPU has been reset, and the set can operate beyond point Ⓐ in the circuit voltage diagram.

Circuit Diagram



Circuit Voltage

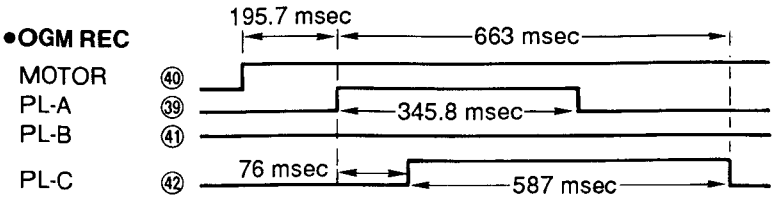


■ TAPE TRANSPORT CONTROL

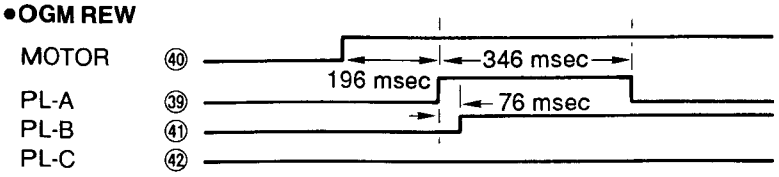
Circuit Operation:
The timing for the plunger and motor which are used to operate the deck is as shown in the timing chart.

Timing Chart

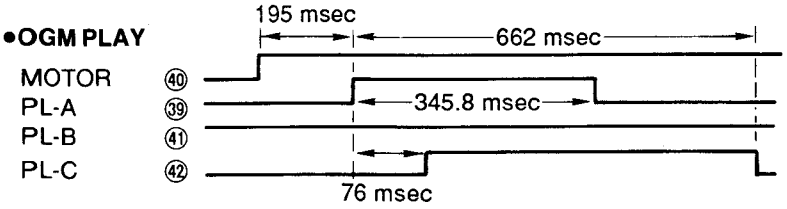
•OGM REC



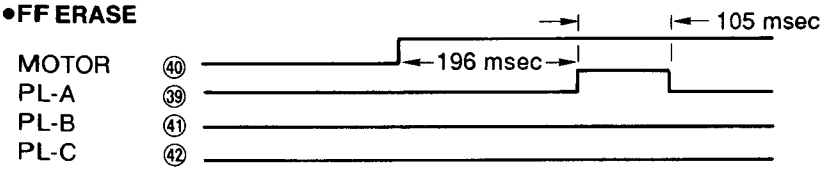
•OGM REW



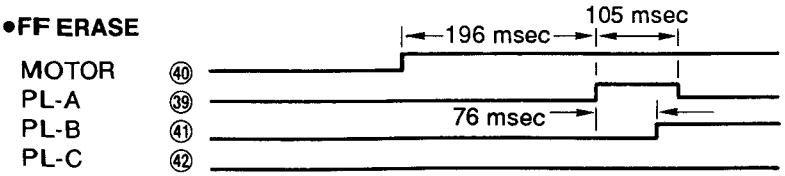
•OGM PLAY



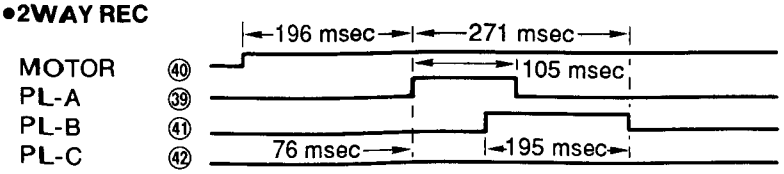
•FF ERASE



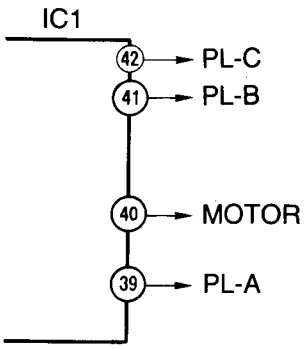
•FF ERASE



•2WAY REC



Circuit Diagram



MC-Service

■ PLAYBACK CIRCUIT (OGM, ICM MESSAGE)

Circuit Operation:
The playback signal for OGM and ICM MESSAGE is selected by IC2.
The selected signal is fed to an equalizer amplifier IC2 via C33, IC4, and IC2 sends the signal to the Monitor Circuit through C28, R42 and R43.
The signal amplified by the buffer amplifier is provided to the telephone line through IC3, R14, LINE OUTPUT CIRCUIT.
R33, C21, R34, C52, IC3, C22 and R36 are components which are necessary for the equalizer amplifier.

•ICM
ICM R/P→C19→pin17 of IC2→pin 21 of IC2→C34→pin 22 of IC2→pin 7 of IC2→C52→R26→R29→C24→pin 6 of IC2→pin 3 of IC2→C17→Speaker.

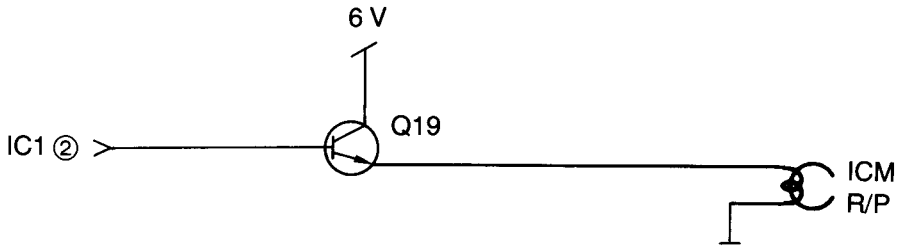
•OGM
OGM R/P→C37→pin 18 of IC2

Circuit Diagram ..... See page 18

■ QUICK ERASE CIRCUIT

Circuit Operation:
When the Erase Switch is turned on, DC current flows as follows;
IC1 ② (High level)→Q19 ON→ICM R/P Head

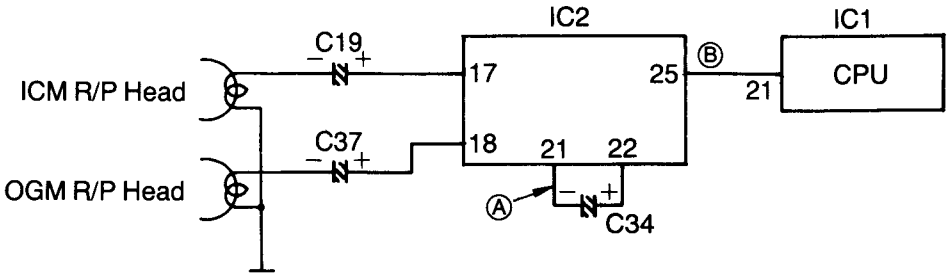
Circuit Diagram



■ OGM END DETECTOR CIRCUIT

Circuit Operation:
When the Stop Button is pressed upon completion of the OGM recording, no sound signals are recorded on the tape. A no-sound detection system is used during play back. If a no-sound condition exists for 2 seconds, CPU detects the OGM end by the output of Vox Circuit (Fig. C).

Circuit Diagram



MC-Service

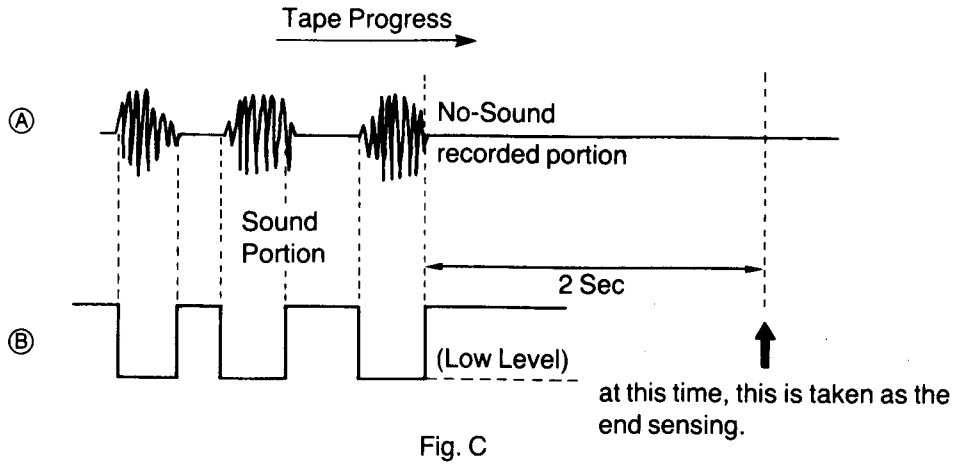


Fig. C

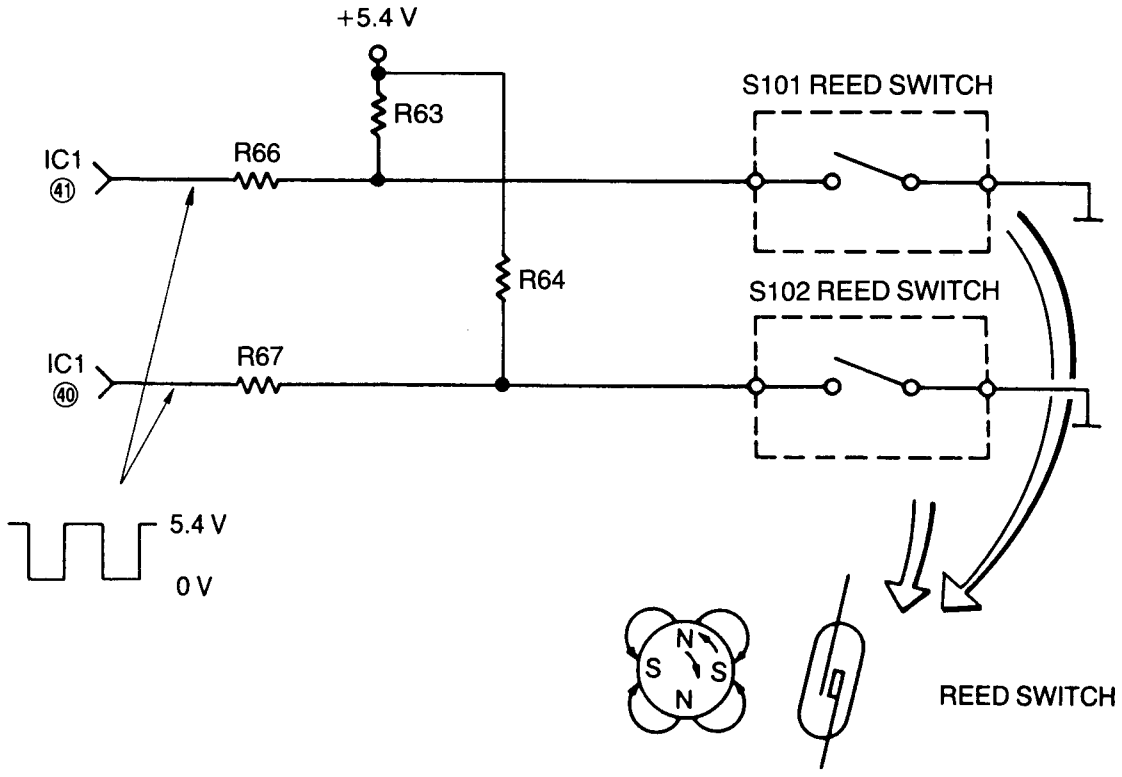
■ ICM/OGM TAPE ROTATION DETECTOR CIRCUIT

Circuit Operation:
When there are changes in the direction of the magnetic field caused by the rotation of the four-pole ferrite magnet are detected by the Reed Switch; this output is added to the microcomputer input.

Reed Switch (S101)→R66→IC1 pin 41 (ICM)

Reed Switch (S102)→R67→IC1 pin 40 (OGM)

Circuit Diagram



MC-Service

■ RECORD CIRCUIT (ICM/OGM)

Circuit Operation:

(Recording signals)

Recording signal from the telephone line or MIC is selected by IC2.

The recording signal flows as follows:

Mic→C25, R27→IC2 pin 10→IC2 pin 21→R40→C36→IC2 pin 19→IC2 pin 17→C19→ICM Head

Tel line→C26, R28→IC2 pin 11 → IC2 pin 18→C37→OGM Head

(Signal)

The beep tone is generated by IC1.

The beep tone of the ICM recording (from pin 35 of IC1) is processed to the ICM recording head via C49 and R21.

(Erase)

When in the Rec mode, pin 22 of IC1 is High.

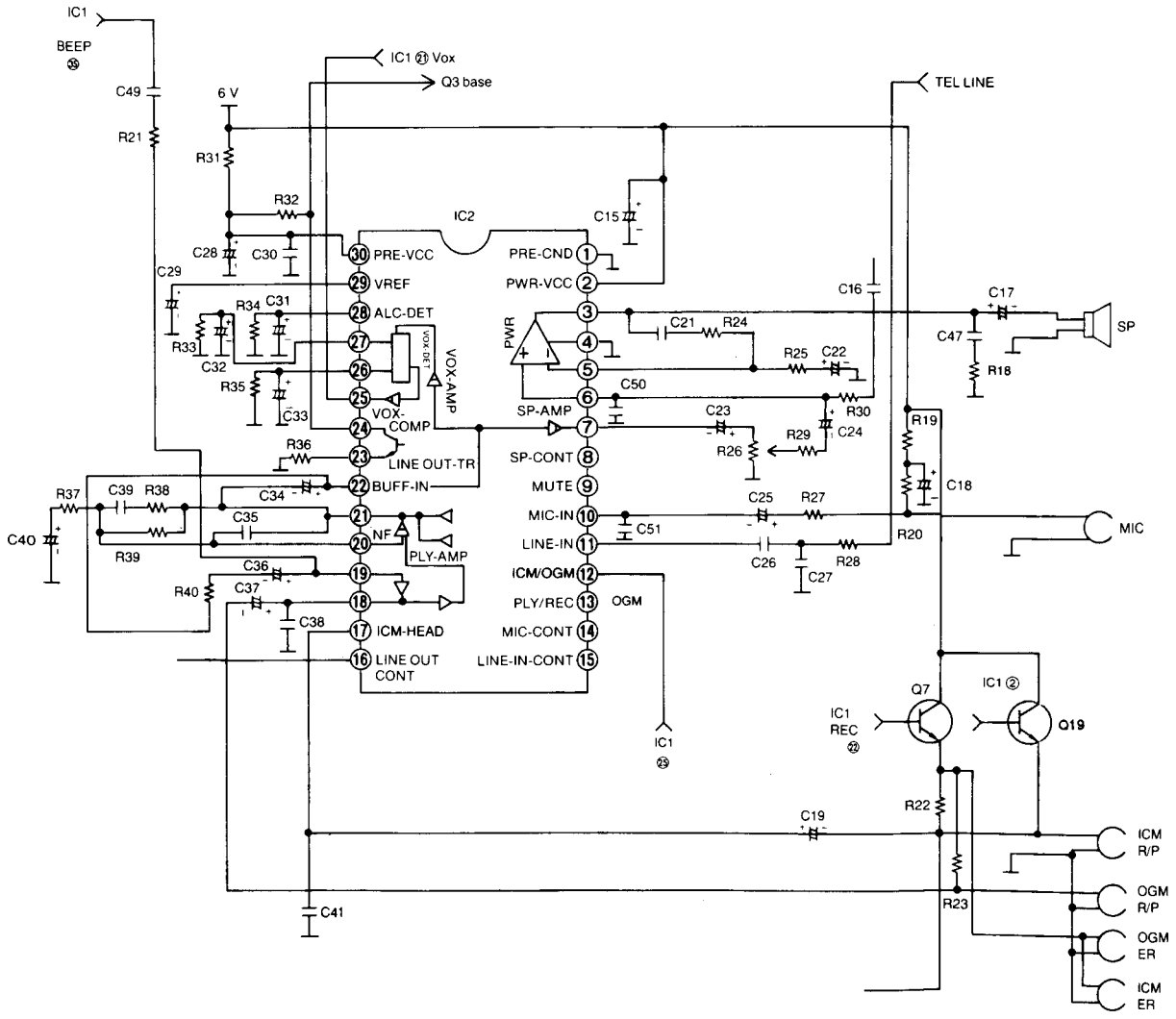
The voltage is applied to the Erase Head, thus the Erase Head is activated.

The bias current is applied to the R/P Head via Q7, R22 and R23.

The DC current flow is as follows;

6 V DC→Q7 turns ON (by High level of IC1 pin 22)→Q7 collector→Q7 emitter→Erase Head.

Circuit Diagram



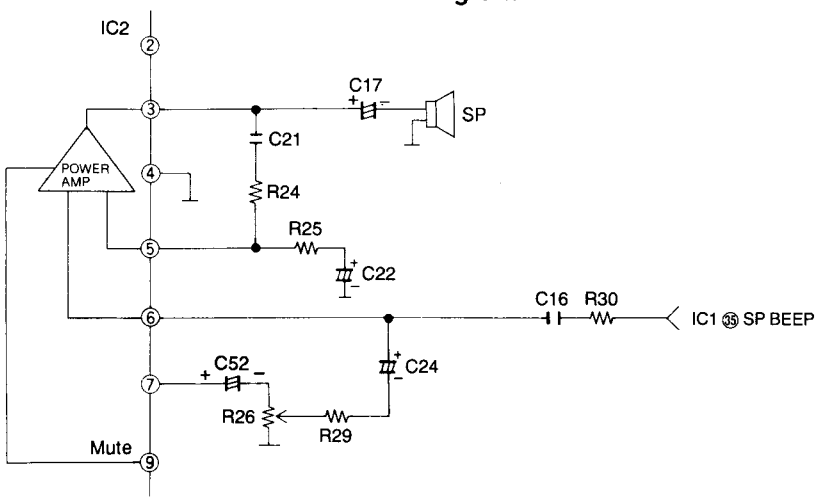
■ MONITOR CIRCUIT AND SPEAKER MUTE CIRCUIT

Circuit Operation:
The monitor signal flow is as follows:
The Line signal and Head signal are amplified by IC2 in each mode. Then these signals appear at IC2 pin 7.

pin 7 of IC2→C52→R26→R29→C24→pin 6 of IC2→pin 3 of IC2→C17→SPEAKER.

The speaker beep tone path: IC1 pin 35→R30→C16→IC2 (pin 6–3)→C17→Speaker.

Circuit Diagram



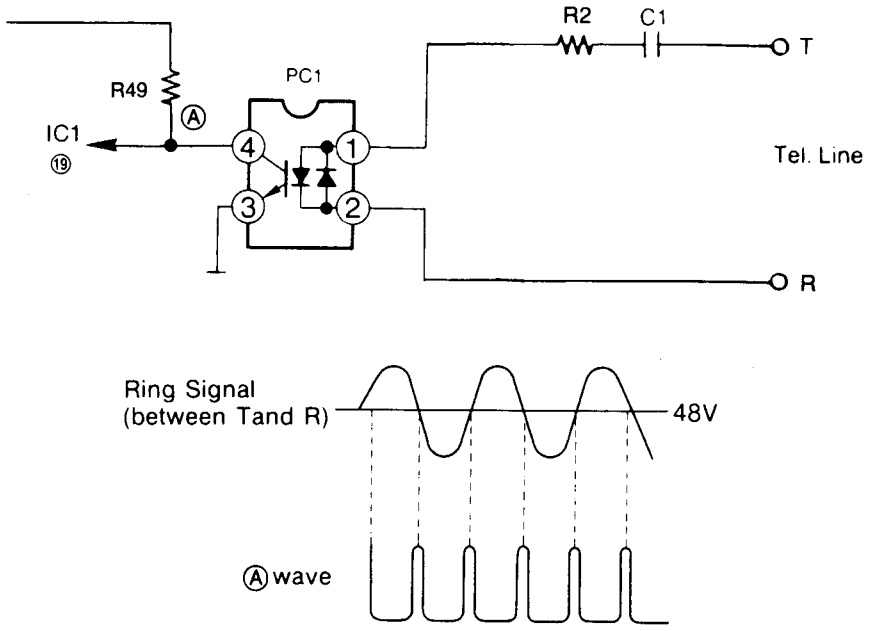
MC-Service

■ RING DETECTOR CIRCUIT

Function:
This circuit activates the CPU to respond to the ring signal from the telephone line during the ANSWER mode of operation.

Circuit Operation:
This ring signal flows through T→C1→R2→PC1 pin 1→PC1 pin 2→R, hence photocoupler PC1 pin 4-3 will turn ON.
As a result, IC1 pin 19 goes Low, indicating that Ring Signal was inputted.

Circuit Diagram



■ INTERFACE

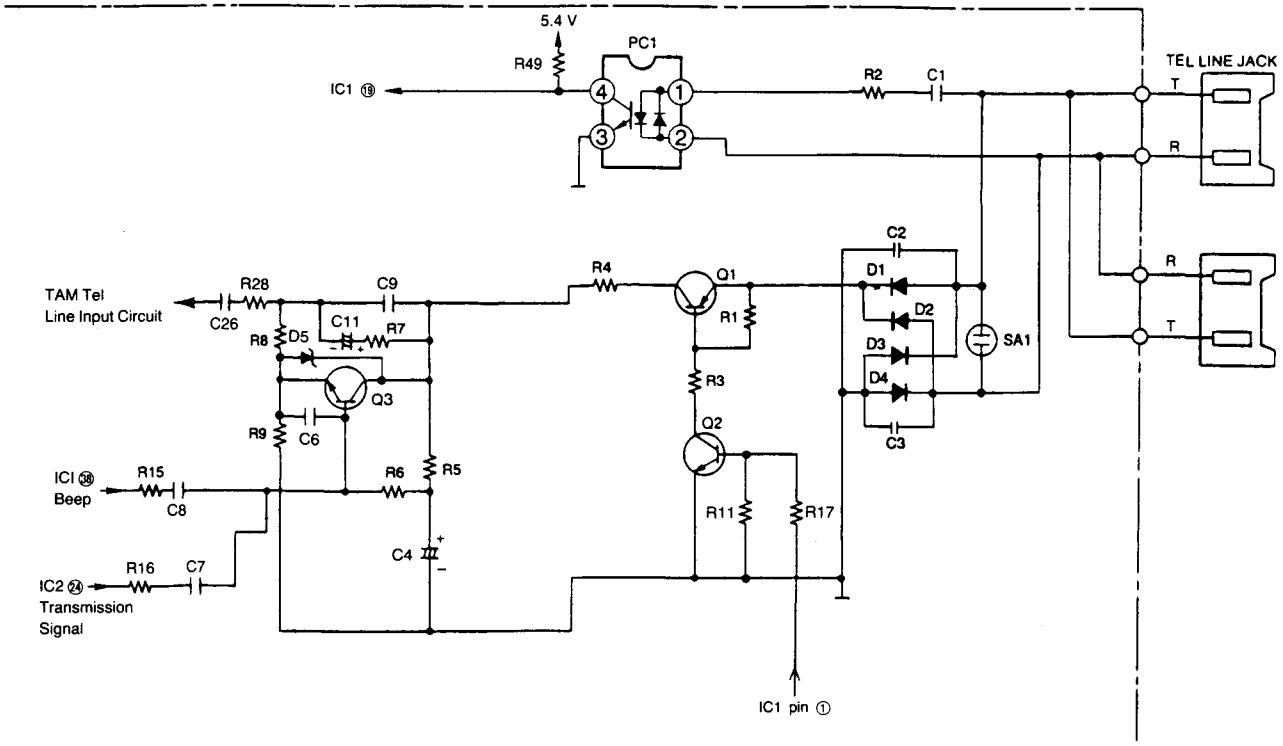
Circuit Operation:

•ANSWER
In the idle mode, IC1 pin 1 LOW is to cut the DC current and decrease the ring load. When a ring voltage appears at the Tip (T) and Ring (R) leads (when the telephone rings), the AC ring voltage is transferred as follows: T→C1→R2→PC1→R to close the telephone line loop and PC1→IC1 pin 19 for processing through the unit. Once the CPU detects the ring signal, thus providing an off-hook condition (active DC current flows through the circuit Q1 and Q2 turn on), the following signal flows is for the voice signal.
T→D1→Q1→R4→Q3→R9→D4→R.

•EXCEPT ANSWER
When IC1 pin 1 becomes "L", Q2 and Q1 turns OFF, hence Q1 is connected to cut the DC current and to cut the signal. The unit is consequently in on-hook condition.

•SPECIFICATIONS
In the on-hook state (idle), the current flows between the telephone line and the unit as follows:
T→C1→R2→PC1→R.
The DC component is blocked by C1: thereby providing the on-hook condition.
The AC interface impedance is over 100 kΩ; thus satisfying the telephone company requirements.
SA1 provide surge protection.

Circuit Diagram

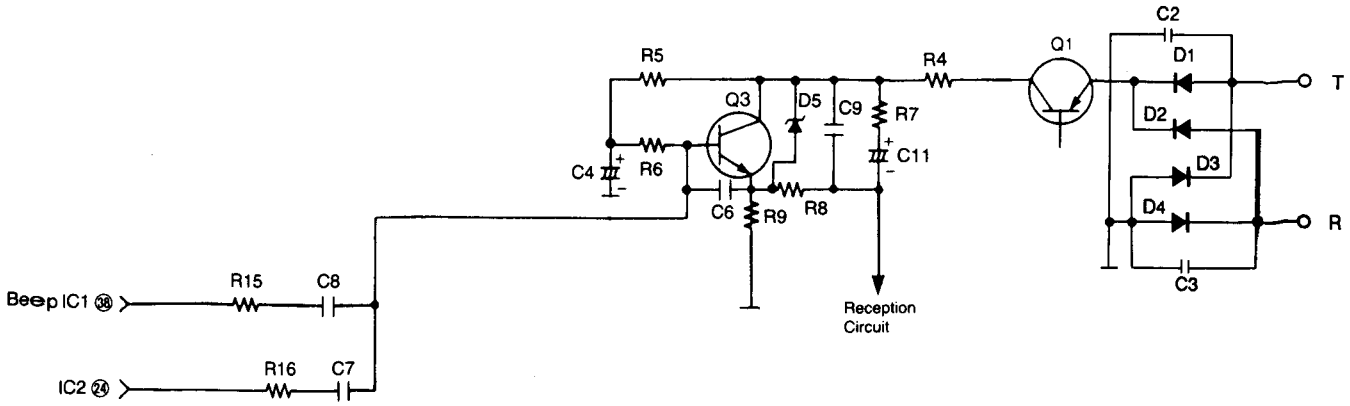


■ LINE OUTPUT CIRCUIT

Each of the signals is sent to the telephone line as follows.

- (Beep Tone)→IC1 pin 38→R15, C8→Q3 base→Q3 collector→R4→Q1→D1/D4→Telephone line
- (Tape Playback Signal) IC2 pin 24→R16→C7

Circuit Diagram



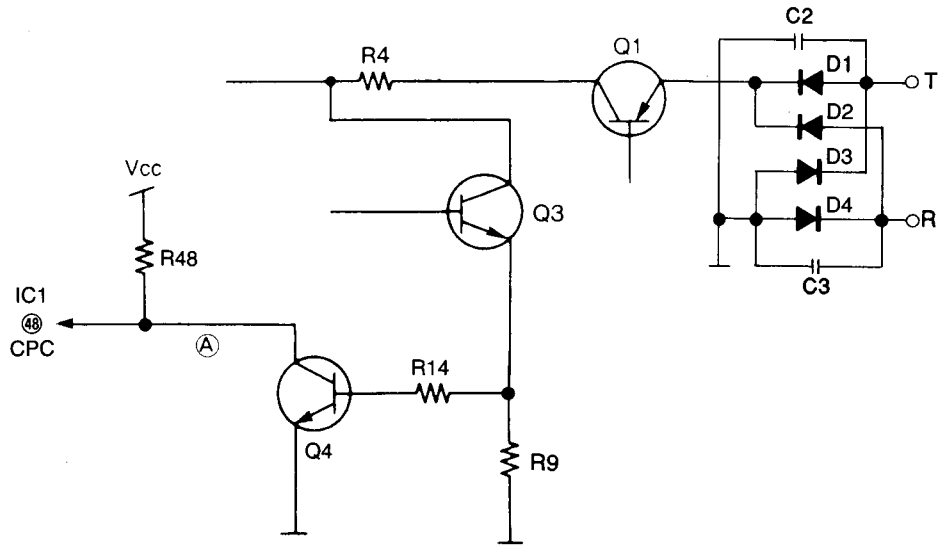
MC-Service

■ CPC (CALLING PARTY CONTROL) DETECTOR CIRCUIT

Function:
The CPU DETECTOR complements the unit's shut off, in the ANSWER mode, after the caller hangs up. At this time, the CPU DETECTOR takes over.
The CPC DETECTOR senses the temporary disconnection of the telephone line which occurs after the caller hangs up.

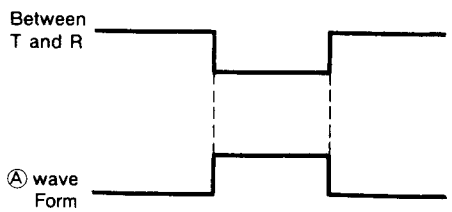
Circuit Operation:
When the unit seizes a line, current will flow through D1~D4, R4, Q3 and R9. As a result, current will flow to the base of Q4 via R14, causing Q4 to turn ON. As a result, IC1 pin 13 will go LOW. If then the line is momentarily cut, line current will cease to flow, and Q4 will turn OFF. Consequently IC1 pin 48 will go High, hence this condition will be detected.

Circuit Diagram



CPC Select

	A	B
OK	more than 8 ms	more than 600 ms
NG	less than 5 ms	less than 350 ms

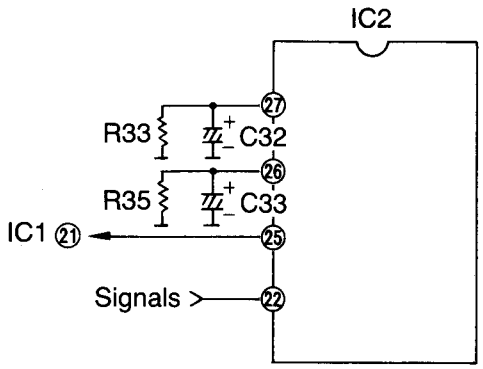


■ VOX CIRCUIT

Function:
The VOX circuit is designed to detect cyclic signals in which the signal is ON for 100 msec. to 1 sec, continuous sounds and no sound at all.
After detection, the CPU issues an instruction that makes VOX operation possible.
This means that when a telephone call has ended, the phone is reset and is ready to receive the next call.

Circuit Operation:
The VOX Signal flow as follows:
Pin 22 of IC2→pin 25 of IC2→pin 21 of IC1 (Vox).

Circuit Diagram

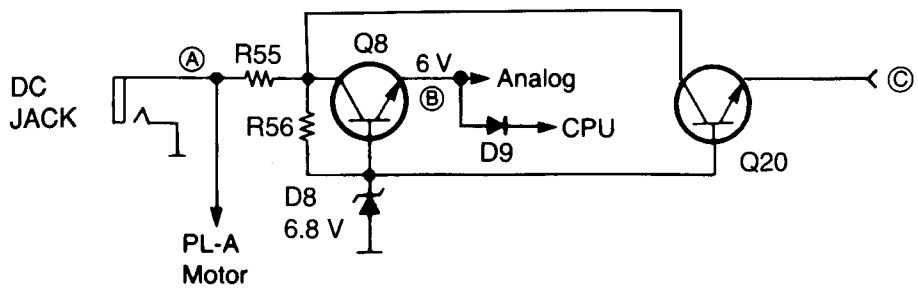


■ POWER SUPPLY CIRCUIT

Function:
Power from the AC adapter passes through the 1-stage regulating block consisting of Q20 and provides system voltages of 6 V.

Circuit Operation:
Power from the AC adapter is supplied directly to the plunger (Ⓐ). Q20 is the first stage regulated power supply. The voltage at point +Ⓒ is regulated to 6 V by the 6.8 V zener voltage of D8. The 6 V voltage is shifted by D9 to 5.4 V which is used to power the CPU, etc.

Circuit Diagram

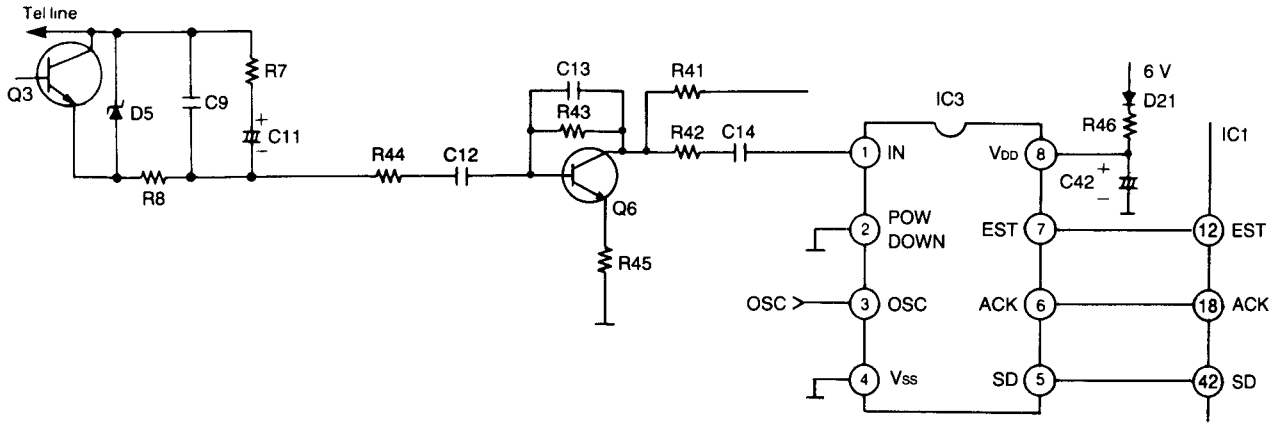


■ REMOTE SIGNAL DETECTOR CIRCUIT

Circuit Operation:

A remote control signal is used with the dual-tone multiple-frequency (DTMF) signal.
The remote signal input from Tel line, Q3 passes through Amplifier (Q6, C12 and R44), via R42 and C14, and is inputted to pin 1 of IC3.
The DTMF signal is inputted to IC6 which changes the 4 bit serial data and is inputted it to pin 42 of IC1 from pin 5 of IC3.

Circuit Diagram



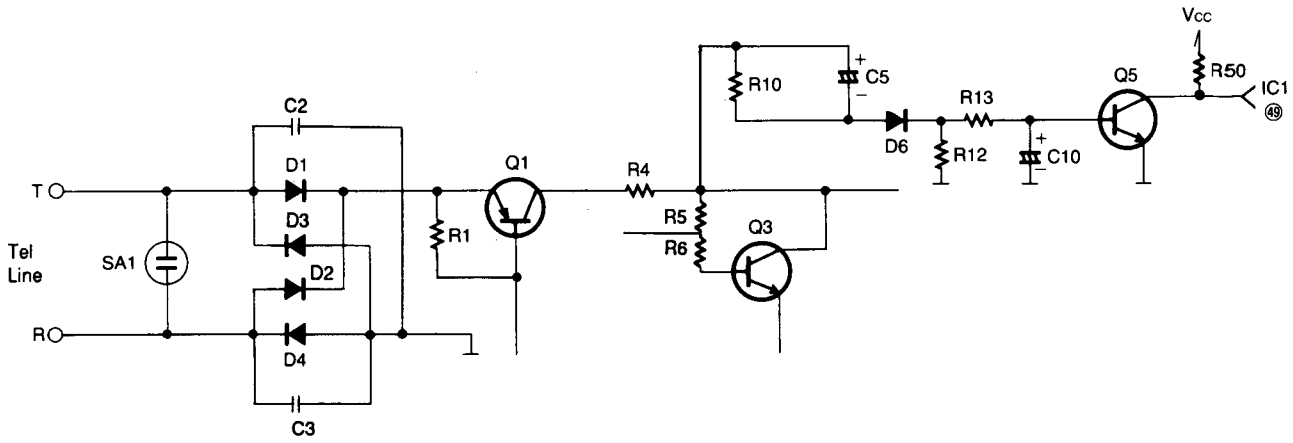
MC-Service

■ AUTO DISCONNECT CIRCUIT

Function:
This circuit is used to detect the fact that another telephone connected to the same line is OFF-HOOK while the unit is in a receiving status or OGM transmitting status.

Circuit Operation:
T→ D1→ Q1→ R4→ C5→ D6→ R13→ Q5. During this interval C5 charges and the base of Q5 becomes High, causing Q5 to go ON.
If a parallel-connected telephone is put into an OFF HOOK status, charge ceases to flow to C5, and the base of Q5 becomes Low, causing Q5 to go OFF.
However, the system is designed so that if the voltage fluctuation is small, the charging and discharging of C10 has no effect on the system.
When a line is connected, Q5 goes On, causing pin 49 of IC1 to go Low. When the line is disconnected, collector of Q5.

Circuit Diagram



MC-Service

■ NUMERICAL LED's CIRCUIT

Circuit Operation:

Q16 and Q17 work switching Upper/Lower respectively.

As port 52~59 in IC1 be raised High Level (5 V). Q16 (Q17) becomes to conductive and flow IF, resulting segment LED light up. [Ref. 1 Fig. E]

Circuit Diagram

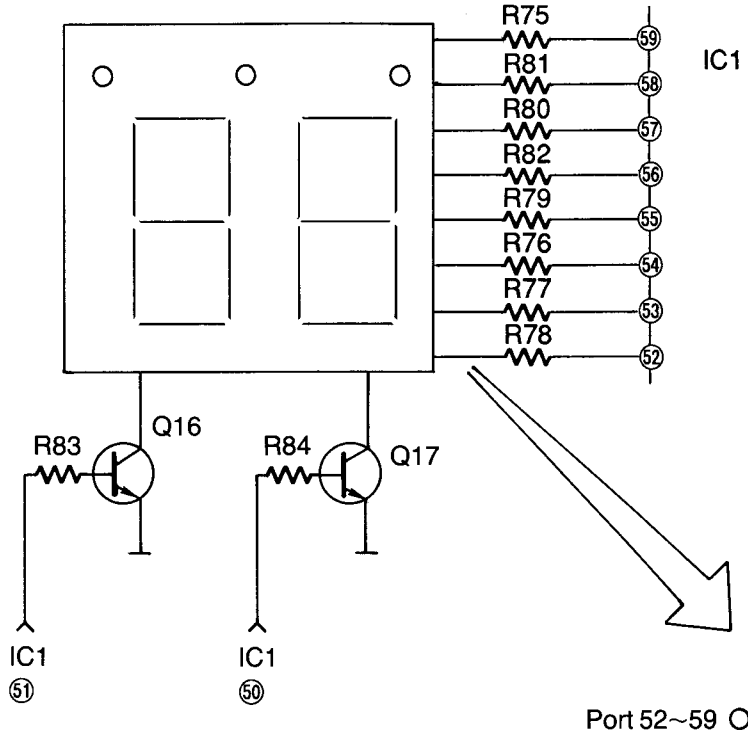


Fig. D

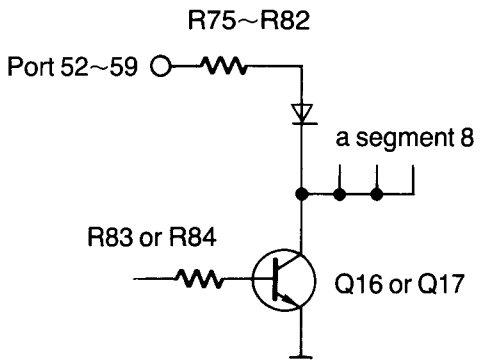


Fig. E

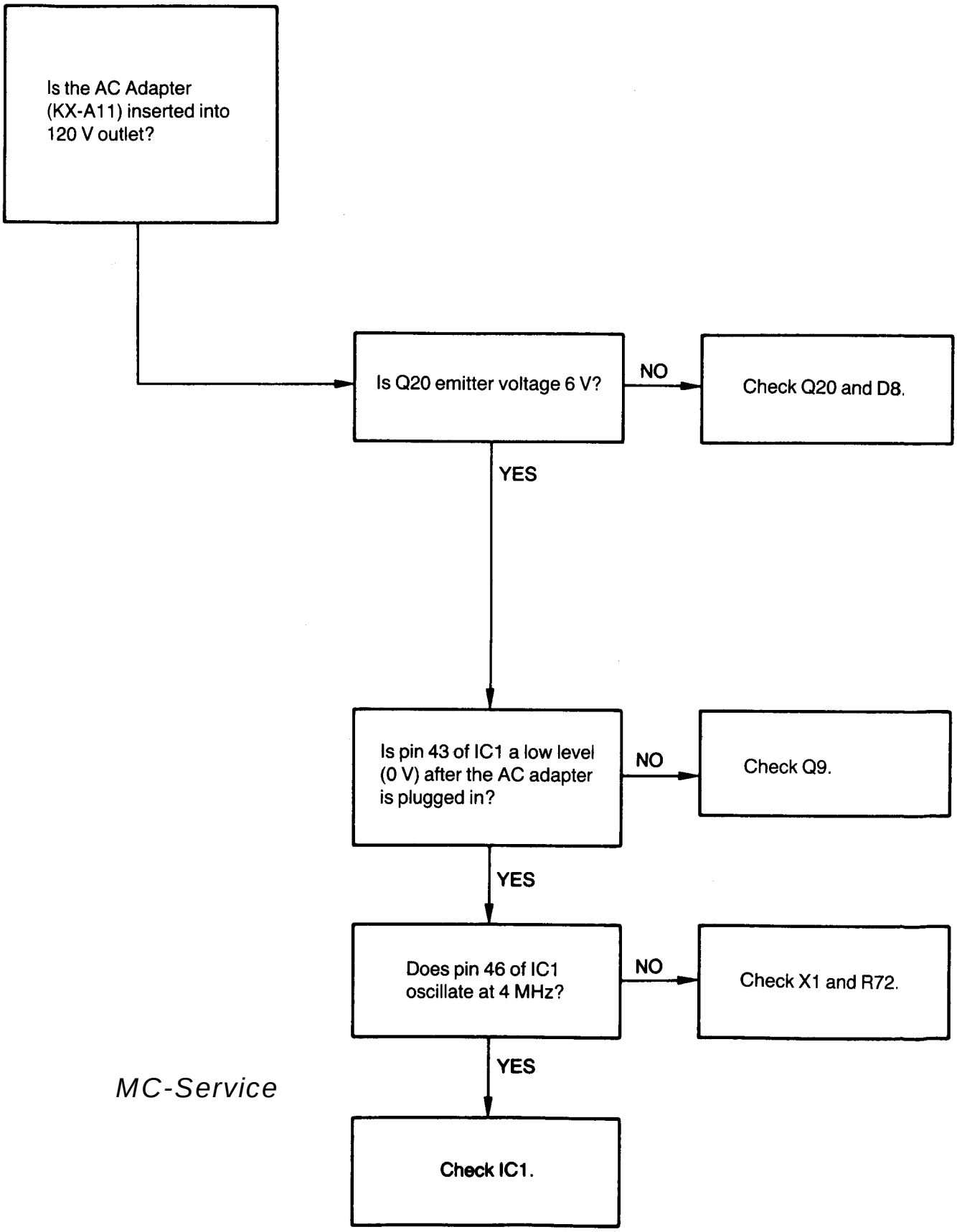
MC-Service

TROUBLE SHOOTING GUIDE

1) SERVICE HINTS

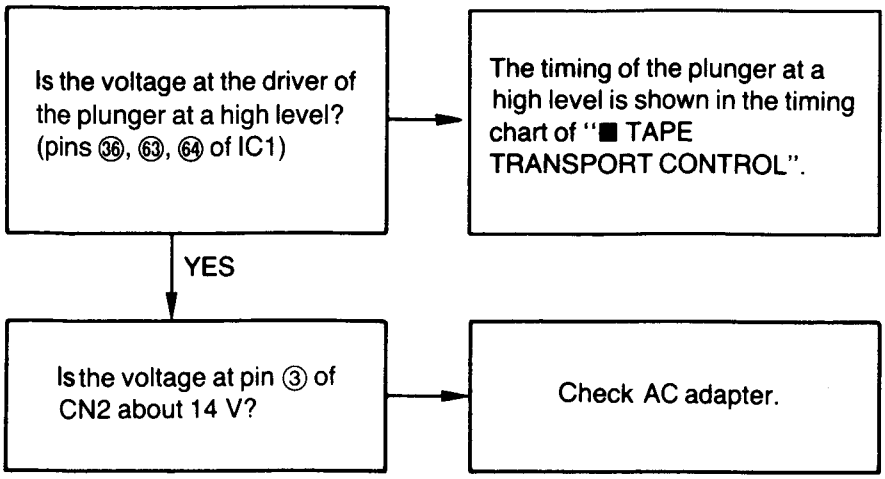
SYMPTOM	CURE
Unit will not respond to remote.	Check IC1, IC3 and Q6.
Will not answer.	Check PC1 IC1, R2 and C1.
OGM/ICM has distorted audio.	Check Speaker.
Would not record OGM and OGM stops after 3 seconds.	Check IC2.
Hangs up when OGM starts.	Check Q5. For bad solder joints.
Dead from factory.	Check Q8, Q20, R55, R56 D9 and D8.
Rell M15 does not turn as needed.	M38 needs to be changed.
Will not record OGM end of message beep.	Check IC1 and IC2.
OGM will not play long enough.	Check solder contacts arround IC1 and IC2.
Heads stuck out of position on OGM or ICM.	Check Pop M7(Head Assy) back into place.
Motor turns on and off constantly.	Check Q10.
OGM clicks on then off.	Check Q11 drive transistor.
ICM eats tapes.	Small belt off or is not on lower side of tension pulley.
No power.	Check R55 for open or heat also check D8 causing R77 to heat.
Will not Record or Play incoming messages.	Check M1 record Head.
Head stock in OGM position.	Mechanical reposition M6 Head Base Assembly.
Plunger A is not functioning.	Check Q11 and D10.
OGM comes on for a second then goes to ICM.	Remove and straighten bent arm M7.
No Erasing on ICM or OGM causing double recording.	Check Q7 and pin 6 of CN3.
No function.	Check Q9.
Machine is in message mode to play back message, it will not back up and reset to the beginning of messages. Will not cue and review.	Check D11 and Q12.

2) FUNCTIONS DO NOT OPERATE.


Is the AC Adapter (KX-A11) inserted into 120 V outlet?
Is Q20 emitter voltage 6 V?
NO
Check Q20 and D8.
YES
Is pin 43 of IC1 a low level (0 V) after the AC adapter is plugged in?
NO
Check Q9.
YES
Does pin 46 of IC1 oscillate at 4 MHz?
NO
Check X1 and R72.
YES
Check IC1.

MC-Service

3) THE PULL OF PLUNGER IS POOR OR NONE AT ALL.

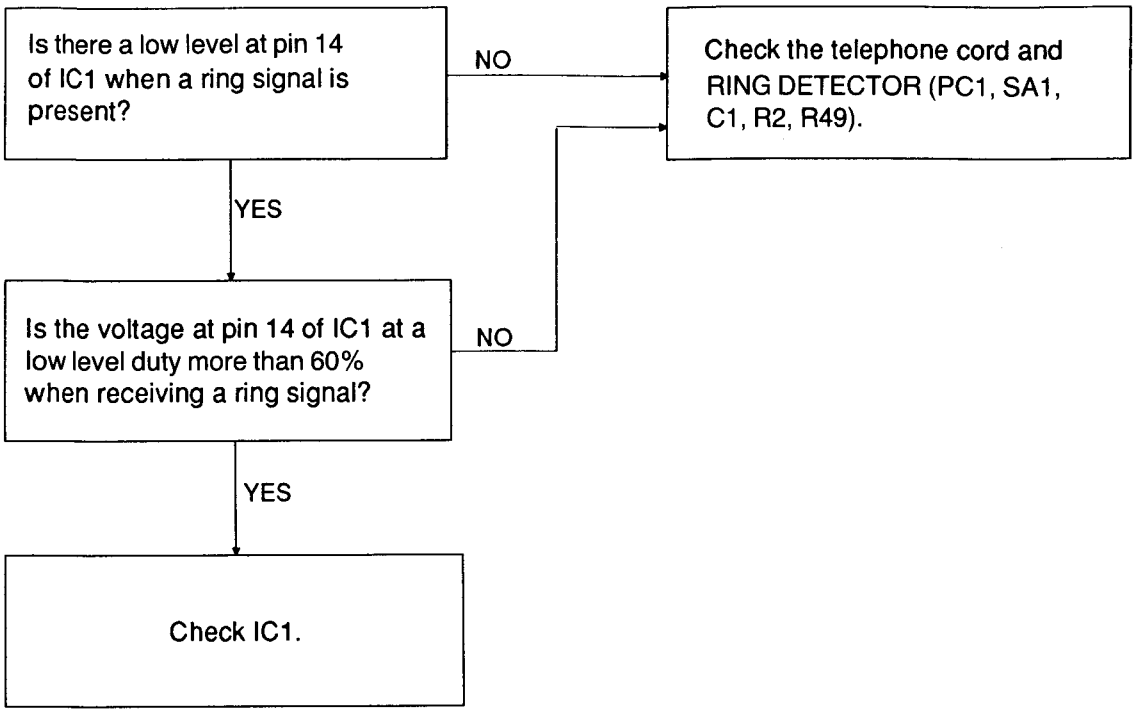

Is the voltage at the driver of the plunger at a high level? (pins ㊱, ㊸, ㊹ of IC1)
The timing of the plunger at a high level is shown in the timing chart of "■ TAPE TRANSPORT CONTROL".
YES
Is the voltage at pin ③ of CN2 about 14 V?
Check AC adapter.

4) OGM END MARK DETECT
Check the Vox Circuit.

5) FAST ERASE DOES NOT WORK
Check Q19 and IC1.

MC-Service

6) DOES NOT ANSWER TELEPHONE CALL


Is there a low level at pin 14 of IC1 when a ring signal is present?
NO
Check the telephone cord and RING DETECTOR (PC1, SA1, C1, R2, R49).
YES
Is the voltage at pin 14 of IC1 at a low level duty more than 60% when receiving a ring signal?
NO
YES
Check IC1.

7) •ICM CONTINUES TO RECORD AFTER THE CALLER HANGS UP.
•END OF MESSAGE IS CLIPPED WHEN CALLER HANGS UP.

When caller hangs up, the KX-T1455 can detect the following 4 signal type.

A. CPC pulse.
B. Dial tone or other continuous tones.
C. Silence.
D. Cycle signals.

A. Check CPC DETECTOR CIRCUIT (Q4, R9, R14, Q3, IC1).
B., C, D.
Check VOX DETECTOR CIRCUIT (pin 25 of IC2, pin 21 of IC1, R35, C33, R33, C32).

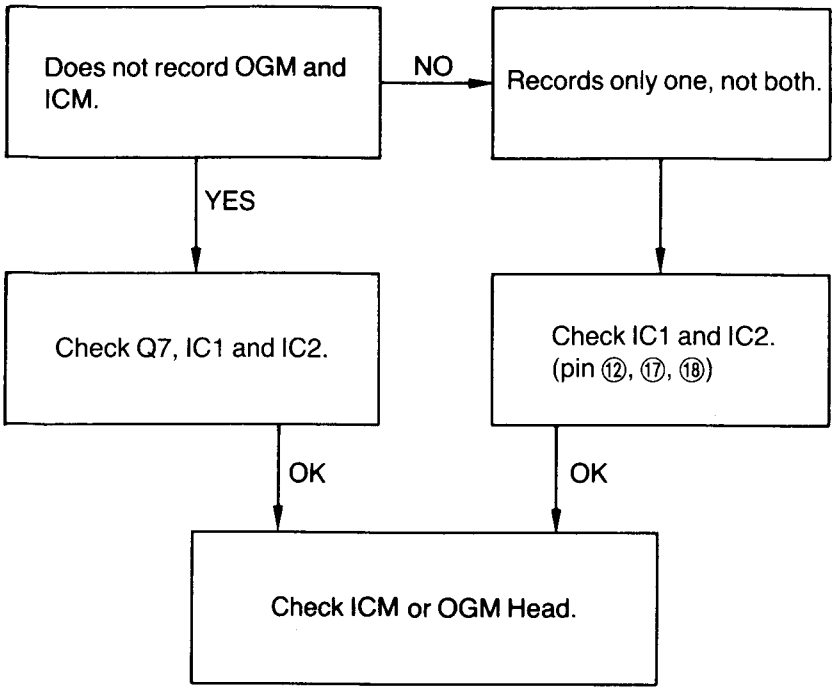
8) REMOTE CONTROLLER DOES NOT WORK OR RESPONSE IS POOR.
The following are considered for the causes of no remote reception:

A. The security code may not be the same as set on the unit.
B. High distortion in LINE OUTPUT CIRCUIT causing interference between the transmitting signal and the remote signal.
C. Excessive loss in telephone line.

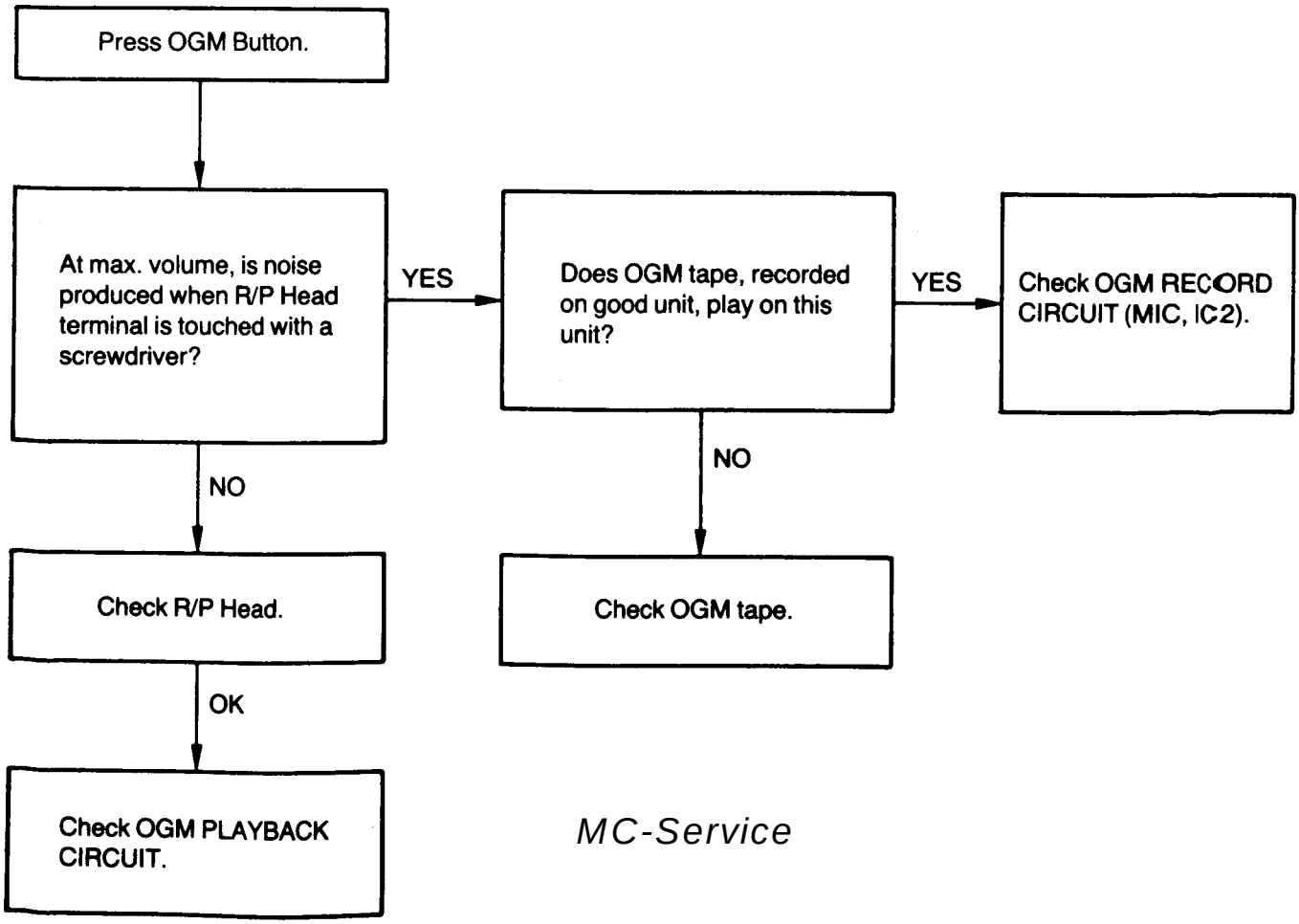
A. Check the security code of the unit.
B. Check LINE OUTPUT CIRCUIT (Q3).
C. Test on a telephone line known to be working properly.

If all of the above check N.G., check the remote signal detect circuit (IC1, IC3 and Q6).

9) DOES NOT RECORD



10) NO OR LOW OGM PLAYBACK


Press OGM Button.
At max. volume, is noise produced when R/P Head terminal is touched with a screwdriver?
YES
Does OGM tape, recorded on good unit, play on this unit?
YES
Check OGM RECORD CIRCUIT (MIC, IC2).
NO
NO
Check R/P Head.
Check OGM tape.
OK
Check OGM PLAYBACK CIRCUIT.

MC-Service

HOW TO REPLACE FLAT PACKAGE IC

■ PREPARATION

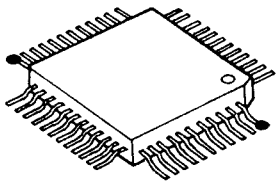
- SOLDER ..... Sparkle Solder 115A-1, 115B-1
  OR
  Almit Solder KR-19, KR-19RMA
- Soldering iron ..... Recomended power consumption will be between 30w to 40w.
  Temperature of Copper Rod 662 ±50° F (350 ±10° C)

  (An expert may handle 60~80w iron, but beginner might damage foil by overheating)
- Flux ..... HI115 Specific gravity 0.863

  (Original flux will be replaced daily.)

■ PROCEDURE

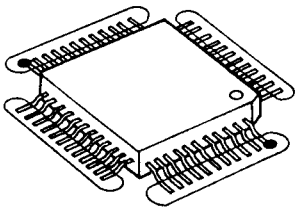
1. Temporary fix FLAT PACKAGE IC by Soldering on marked 2pins.



●.....Temporary soldering point.

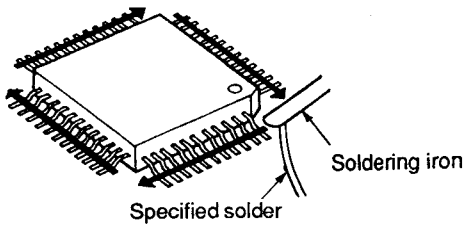
*Most important matter is accurate setting of IC to the corresponding soldering foil.

2. Apply flux for all pins of FLAT PACKAGE IC.



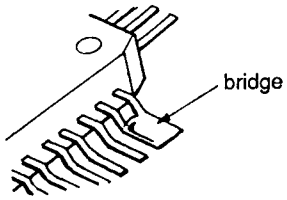
.....Flux

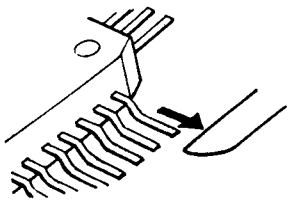
3. Solder employing specified solder to direction arrow, as slide the soldering iron.



■ MODIFICATION PROCEDURE OF BRIDGE

1. Re-solder slightly on bridging portion.
2. Remove remained solder along pins employing soldering iron as shown in below Figure.





MECHANICAL PARTS LOCATION

Ref. No.	Part No.
Ⓐ	XSN26+W4FS
Ⓑ	XTN2+10W
Ⓒ	XTN2+6W
Ⓓ	XTN2+8J
Ⓔ	XTW26+5LF
Ⓕ	XSB2+6FU
Ⓖ	XTW26+8F
Ⓗ	XTW3+S10M
Ⓘ	XTW26+6F

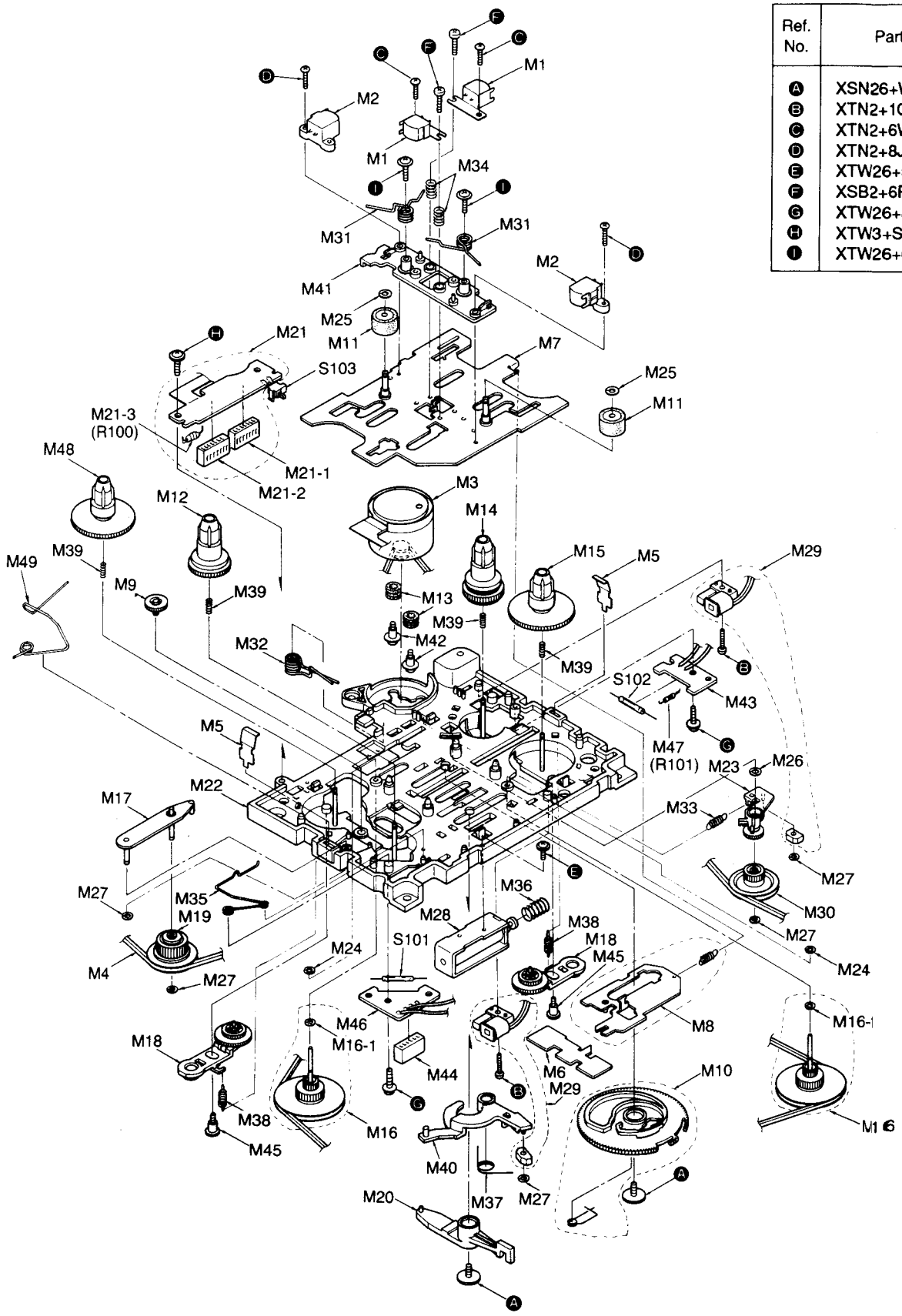
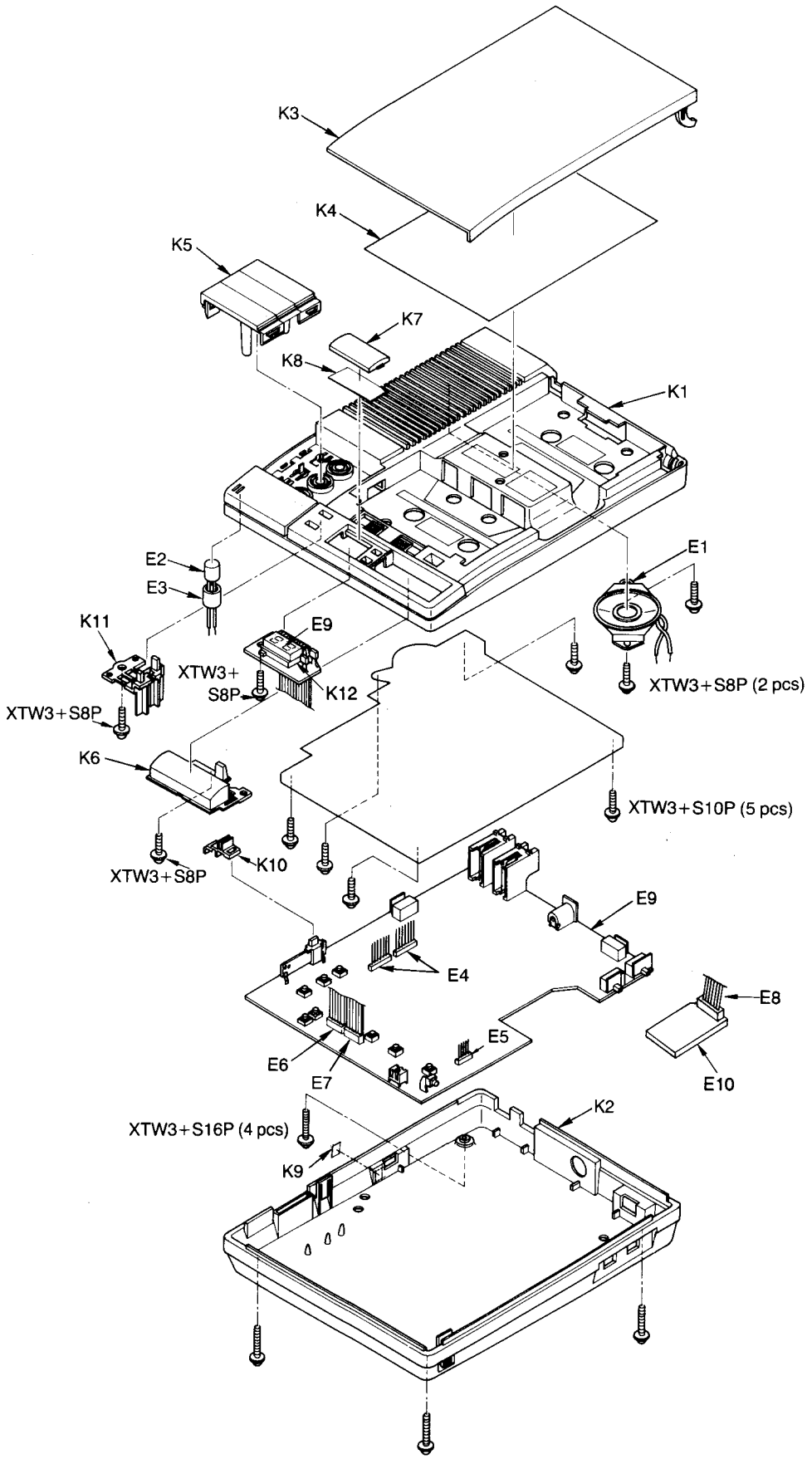


Fig. 12

Specifications

Playback torque	35~60 g • cm
Fast forward torque	85~180 g • cm
Rewind torque	85~180 g • cm

CABINET PARTS & ELECTRICAL PARTS



MC-Service

Fig. 11

REPLACEMENT PARTS LIST

Model KX-T1455

Notes:

1. Printed circuit board assembly with mark (NLA) is no longer available after production discontinuation of the complete set.
2. Important safety notice.
   Components identified by the ⚠ mark special characteristics important for safety. when replacing any of these components, use only manufacture's specified parts.
3. The S mark indicates service standard parts and may differ from production parts.
4. RESISTORS & CAPACITORS
   Unless otherwise specified.
   All resistors are in ohms(Ω) k=1000Ω,M=1000kΩ
   All capacitors are in MICRO FARADS(μF) P=μμF
   *Type &Wattage of Resistor
   Type

ERC:Solid	ERX:Metal Film	PQ4R:Carbon
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resistor
PQRD:Carbon	ER0:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage of Capacitor
Type

ECFD:Semi-Conductor	ECCD,ECKD,ECBT,PQCBC : Ceramic
ECQS:Styrol	ECQE,ECQV,ECQG : Polyster
PQCUV:Chip	ECEA,ECSZ : Electrolytic
ECQMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H: 50V	05: 50V	0F:3.15V	0J :6.3V	1V :35V
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V
2E:250V	2:200V	1V:35V	1C :16V	1J :63V
2H:500V		0J:6.3V	1E,25:25V	2A :100V

Ref. No.	Part No.	Part Name & Description		Pcs
		MECANICAL PARTS		
M1	PQJH1E6Z	R/P Head		2
M2	PQJH6E4Z	Erace Head		2
M3	PQFM9914Z	Motor Assembly		1
M4	PQFB18Z	Belt		1
M5	PQFD77Z	Leaf Spring		2
M6	PQFD85Z	Operation Plate		1
M7	PQFD9914Z	Operation Plate		1
M8	PQFD9915Z	Assistant Plate Assembly		1
M9	PQFG55Z	FF Gear		1
M10	PQFG9906Z	Cam Gear Assembly		1
M11	PQFI1004Z	Pinch Roller (ICM)		2
M12	PQFR9915Z	Reel Table (ICM Supply) Assembly		1
M13	PQFI4Z	Rubber Spacer, Motor		2
M14	PQFR9916Z	Reel Table (OGM Supply) Assembly		1
M15	PQFR9917Z	Reel Table (Takeup) Assembly		2
M16	PQFF9910Z	Flywheel Assembly		2
M16-1	PQFN50Z	Washer		3
M17	PQFD9908Z	F/R Lever Assembly		1
M18	PQFR9918Z	Play Arm Assembly		2
M19	PQFQ9904Z	F/R Pulley Assembly		1
M20	PQFY9906Z	Tringer Lever-A Assembly		1
M21	PQFZ9910Z	Flexble P.C. Board Assembly		1
M21-1	PQJS7B30Z	Connector (7 Pin)		1
M21-2	PQJS7B30Z	Connector (7 Pin)		1
M21-3 (R100)	PQRDS2TJ563	Carbon Film Resistor, 56kΩ		1
M22	PQFC9910Z	Mechnism Base Assembly		1
M23	PQFR9919Y	Rewind Arm Assembly		1
M24	PQFN16Z	Washer		2
M25	PQFN51Z	Washer		2
M27	PQFN7Z	Washer		5
M28	PQFP119Z	Plunger-A		1
M29	PQFP121Z	Plunger-B, C	S	2
M30	PQFQ32Z	Rew Pully		1
M31	PQFS115Z	Spring, Head		2
M32	PQFS117Z	Spring, Head Base		1
M33	PQFS118Z	Spring, Rew Arm		1
M34	PQFS119Z	Spring		2
M35	PQFS121Z	Spring		1
M36	PQFS86Z	Spring, Plunger-A		1
M37	PQFS87Z	Spring, Tringer Lever-B		1
M38	PQFS88Z	Spring, Play Arm		2
M39	PQFS90Z	Spring		4
M40	PQFW49Z	Tringer Lever-B		1
M41	PQFW52Z	Head Base		1
M42	PQHD4Z	Screw		2
M43	PQUP717Z	P.C. Board, OGM		1
M44	PQJS6B30Z	Connector (6 Pin)		1
M45	PQHD18Z	Screw		2
M46	PQUP568Z	P.C. Board, ICM		1
M47 (R101)	PQRD250TJ105	Carbon Film Resistor, 1MΩ		2
M48	PQFR9920Z	Reel Table (Takeup) Assembly		1
M49	PQFS125Y	Spring		1
		INTEGRATED CIRCUITS, TRANSISTORS & DIODES		
IC1	PQVI4042FJ91	IC		1
IC2	AN6180K	IC		1
IC3	PQVIMT3074AE	IC		1
IC201	PQVITC4040BF	IC		1
IC202	PQVITC4001BF	IC	S	1
IC203	PQVINJ4069BM	IC	S	1
Q1	2SA1625	Transistor (Si)		1⚠
Q2	2SD662B	Transistor (Si)		1⚠
Q3	PQVTKSD261CY	Transistor (Si)		1
Q4~7, 9 ,12~14, 16 , 17, 19	2SC3330	Transistor (Si)	S	11
Q8, 10	2SD1994A	Transistor (Si)		2
Q11	2SC2120	Transistor (Si)		2
Q15	2SA1317	Transistor (Si)	S	1
Q20	2SD2136	Transistor (Si)		1
Q201	2SC1623	Transistor (Si)	S	1
D1~4	PQVD1N4004	Diode (Si)		4⚠
D5	MA4180	Diode (Si)	S	1
D6, 14, 15	1SS131	Diode (Si)	S	3
D7	PQVDHZS2B1	Diode (Si)		1
D8	PQVDMTZ6R8	Diode (Si)		1
D9~11	1SS119	Diode (Si)		3
D12, 21	1S2076	Diode (Si)		2
D201, 204	MA151WK	Diode (Si)		2
D202, 203	MA151K	Diode (Si)		2
LED1	LN310GPX	LED		1
LED2	LN210RPX	LED		1
LED201	PQVDSL427620	LED		1
		SWITCHES		
S1, 4	PQSS3A17Z	Switch, Rectime, Rings		2
S2, 3	PQSS2A27Z	Switch, CPC, Remote Code		2
S5	EVQ-QSH04K	Switch, Power ON/OFF		1
S6,7,9-14	EVQ12405K	Switch,OGM play, OGM Rec,Rew , FF, Memo, ICM Erase, 2 Way, OGM Selector		8
S8	PQSH1A13Z	Switch, Playback/Pause		1
S101, 102	PQSE17Y	Switch, Reed (for Deck)		2
S103	PQSH1A17Z	Switch, Head Position (for Deck)		1
		JACKS		
JJ1,2	PQJJ1TA9Z	Jack, Telephone		2⚠
JJ3	PQJJ1B4Y	Jack, DC IN		1
		OTHERS		
SA1	PQVDSAE310F1	Varistor (Surge Absorber)	S	1⚠
PC1	PQVIPC814Y	Photo Electric Tranducer		1⚠
R26	PQVAL204A14A	Volume Control, 10kΩ(A)		1
X1	PQVBT4.19G1	Ceramic Filter		1

Ref. No.	Part No.	Part Name & Description		Pcs
		CABINET PARTS		
K1	PQKM163Y91	Upper Cabinet		1
K2	PQYF1038Y0	Lower Cabinet Assembly		1
K3	PQQT5087Z	Instruction Label		1
K4	PQGP86Z	Cassette Lid		1
K5	PQBCX109Z1	Button, MEMO, REW, FF		1
K6	PQBCX126Z	Button, Playback/Pause		1
K7	PQGP87Y	LED Panel		1
K8	PQGP101Z	Smoke Panel		1
K9	PQQT52Z	Code Label		1
K10	PQBD131Z	Knob, Volume		1
K11	PQBCX132Z	Button, OGM select		1
K12	PQHR9309Z	LED Holder		1
		ELECTRICAL PARTS		
E1	PQAS5P05Z	Speaker		1
E2	RJM142Z	Microphone	S	1
E3	PQHG503Z	Rubber Parts, Microphone		1
E4	PQJP7D78Z	Connector (7 pin) [CN1, 3]		2
E5	PQJP6D79Z	Connector (6 pin) [CN2]		1
E6	PQJS6X42Z	Connector (6 pin) [CN5]		1
E7	PQJS7X42Z	Connector (7 pin) [CN4]		1
E8	PQJE91Z	Connector [CN6]		1
E9	PQWP2T1455M	Main, P.C.B. Assembly (NLA)		1
E10	PQWP2T1455M	Sub, P.C.B. Assembly (NLA)		1
		ACCESSORIES		
A1	KX-A11	AC Adaptor		1
A2	PQJA59Y	Telephone Cord	S	1
A3	PQJN1P15AZ	Magnetic Recording Tape		1
A4	PQQX5950Z	Instruction Book		1
A5	PQQX1308Z	Dial Card		1
		PACKING MATERIALS		
P1	PQPK771Z	Gift Box		1
P2	PQPN977Z	Cushion		1
P3	PQPN978Z	Accessory Box		1

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
		RESISTORS			
R1	ERD16TJ104	100K ⚠	R28	PQ4R18XJ392	3.9K
R2	ERDS1TJ223	22K ⚠	R29	PQ4R18XJ222	2.2K
R3	ERD16TJ472	4.7K ⚠	R30	PQ4R18XJ125	1.2M
R4	ERDS1TJ820	82	R31	ERD16TJ121	120
R5	PQ4R18XJ102	1K	R32	PQ4R18XJ122	1.2K
R6	ERD16TJ153	15K	R33	PQ4R18XJ183	18K
R7	ERD16TJ681	680	R34	PQ4R18XJ224	220K
R8	PQ4R18XJ121	120	R35	ERD16TJ563	56K
R9	ERDS1TJ680	68	R36	ERD16TJ101	100
R10	PQ4R18XJ223	22K	R37	PQ4R18XJ151	150
R11	ERD16TJ683	68K	R38	ERD16TJ183	18K
R12	ERD16TJ103	10K	R39	ERD16TJ334	330K
R13	ERD16TJ682	6.8K	R40	PQ4R18XJ223	22K
R14	PQ4R18XJ223	22K	R41	ERD16TJ472	4.7K
R15	PQ4R18XJ334	330K	R42	PQ4R18XJ103	10K
R16	PQ4R18XJ473	47K	R43	ERD16TJ105	1M
R17	PQ4R18XJ473	47K	R44	ERD16TJ103	10K
R18	PQ4R18XJ2R2	2.2	R45	PQ4R18XJ470	47
R19	PQ4R18XJ272	2.7K	R46	ERD16TJ101	100
R20	ERD16TJ222	2.2K	R47	Not Used	
R21	PQ4R18XJ225	2.2M	R48	ERD16TJ472	4.7K
R22	ERD16TJ273	27K	R49	PQ4R18XJ332	3.3K
R23	PQ4R18XJ273	27K	R50	ERD16TJ473	47K
R24	PQ4R18XJ103	10K	R51	ERD16TJ104	100K
R25	ERD16TJ182	1.8K	R52	PQ4R18XJ473	47K
R27	ERD16TJ332	3.3K	R53	PQ4R18XJ104	100K
R54	PQ4R18XJ183	18K	R74	ERD16TJ472	4.7K
R55	PQRQ2VJ100	10	R75	PQ4R18XJ271	270
R56	ERDS1TJ391	390	R76	PQ4R18XJ271	270
R57	PQ4R18XJ471	470	R77	ERD16TJ271	270
R58	ERD16TJ102	1K	R78	ERD16TJ271	270
R59	ERD16TJ472	4.7K	R79	ERD16TJ271	270
R60	ERD16TJ473	47K	R80	PQ4R18XJ271	270
R61	PQ4R18XJ103	10K	R81	ERD16TJ271	270
R62	PQ4R18XJ472	4.7K	R82	ERD16TJ271	270
R63	PQ4R18XJ683	68K	R83	ERD16TJ472	4.7K
R64	PQ4R18XJ683	68K	R84	ERD16TJ472	4.7K
R65	PQ4R18XJ473	47K	R85	PQ4R18XJ472	4.7K
R66	ERD16TJ223	22K	R86	PQ4R18XJ221	220
R67	PQ4R18XJ223	22K	R87	ERD16TJ472	4.7K
R68	ERD16TJ223	22K			
R69	ERD16TJ221	220	R201	PQ4R10XJ473	47K
R70	PQ4R18XJ102	1K	R202	PQ4R18XJ223	22K
R71	Not Used		R203	PQ4R10XJ274	270K
R72	ERD16TJ105	1M	R204	PQ4R10XJ103	10K
R73	ERD16TJ151	150	R206	PQ4R10XJ473	47K
		CAPACITORS			
C1	ECQE2474KF	0.47 ⚠	C28	ECEA0JK221	220
C2	ECKD2H681KB	680P ⚠	C29	ECEA1CK101	100
C3	ECKD2H681KB	680P ⚠	C30	PQCBC1C103MY	0.01
C4	ECEA1HKS3R3	3.3	C31	ECEA1HKS4R7	4.7
C5	ECEA1CU221	220	C32	ECEA1HKS4R7	4.7
C6	PQCBC1C103MY	0.01	C33	ECEA1HKSR22	0.22
C7	ECFD1C104KD	0.1	C34	ECEA1HKSR47	0.47
C8	PQCBC1C103MY	0.01	C35	PQCBC1H681KB	680P
C9	ECFD1E223KD	0.022	C36	ECEA1CKS100	10
C10	ECEA1HKS2R2	2.2	C37	ECEA1CKS100	10
C11	ECEA1EK470	47	C38	PQCBC1C222MX	0.0022
C12	ECFD1E223KD	0.022	C39	PQCBC1C103MY	0.01
C13	PQCBC1H471KB	470P	C40	ECEA0JKS220	22
C14	ECFD1E223KD	0.022	C41	PQCBC1C222MX	0.0022
C15	ECEA0JU331	330	C42	ECEA1CKS470	47
C16	PQCBC1C103MY	0.01	C43	ECEA1HKS3R3	3.3
C17	ECEA0JK221	220	C44	ECEA0JU332	3300
C18	ECEA1CKS470	47	C45	PQCBC1C103MY	0.01
C19	ECEA1CKS100	10	C46	PQCBC1C103MY	0.01
C20	Not Used		C47	ECUV1H103KB	0.01
C21	PQCBC1H681KB	680P	C48	PQCBC1H470JL	47P
C22	ECEA1HKS010	1	C49	ECUV1H103KB	0.01
C23	ECEA1HKS0R1	0.1	C50	ECUV1H472KB	0.0047
C24	ECEA1HKS0R1	0.1	C51	PQCBC1H102KB	0.001
C25	ECEA1HKSR47	0.47	C52	ECEA1HKS010	1
C26	ECFD1C333KD	0.033	C53	ECUV1H103KB	0.01
C27	ECFD1E473KD	0.047	C54	ECUV1H103KB	0.01
			C201	PQCUV1H103KB	0.01
			C202	PQCUV1H102J	0.001

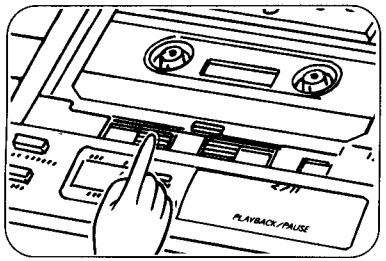
OPERATIONS

RECORDING THE OGM

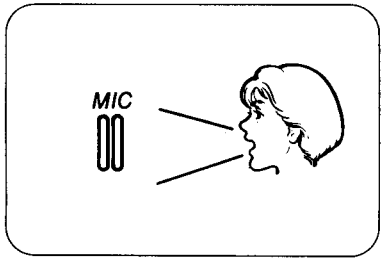
Be sure that your desired OGM's indicator is lit. (Refer to "SELECTING THE OGM MODE 1 OR 2" on Operating Instructions.)

OGM 1: Recording time is up to 30 seconds.
If you do not finish recording within 30 seconds, the unit will automatically stop recording.

OGM 2: Recording time may be any length up to the tape end.

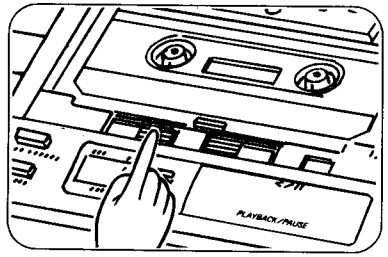


1 Push **OGM REC** until a long beep is heard, then release it.



2 After the long beep, speak **clearly and loudly** into the microphone (MIC), from **approximately 8 inches away**.

- The Call-Counter will show; "0" → "1" → "2" → ... .



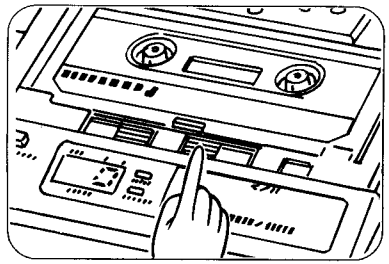
3 When recording is finished, push **OGM REC** again.

- The unit will rewind the tape to the beginning, and will be ready for recording incoming calls.

■ ***If you pause for over 2 seconds while recording,*** *you will hear a series of* warning tones (6 beeps) and the unit will rewind the tape. If this happens, start with step 1 again after the unit stops rewinding.

CHECKING YOUR OGM

You can check your OGM at any time.
After selecting the OGM mode (1 or 2) that you want to check.



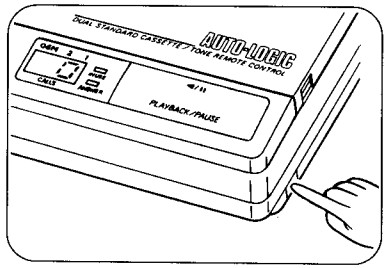
1 Push **OGM PLAY**.

- The unit will play back the OGM, then rewind the tape to the beginning.
- Use the **VOLUME** control on the left side of your unit to regulate the volume during playback if necessary.
- To cancel the operation during playback, push the **OGM PLAY** button.

NOTE:
- The unit will automatically change to the Answer mode 7 seconds after completing the OGM recording or playing back. At this time, the ANSWER indicator will light.
- **Answer mode:**
  When a call is received, the unit will automatically answer and record Incoming Messages on the ICM tape.

RECORDING THE CALLERS' MESSAGES

Confirm that **the Call-Counter shows "0"**. (The unit is turned on.)
If the unit is not turned on:



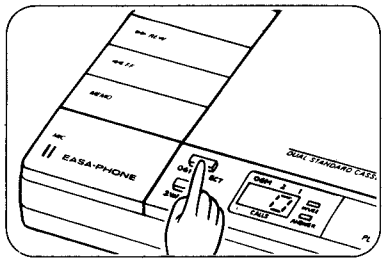
1 Push **POWER ON/OFF** to turn the unit on.

- After 7 seconds, the ANSWER indicator will light, the Call-Counter will show "0".
- The unit will be ready for recording incoming calls.

■ When you want to inform your OGM but do not want to record the callers' messages, set the **Recording Time selector** to **"ANN. ONLY"**. (See the Operating Instructions.)
■ If you do not want the unit to answer the call, push the **POWER ON/OFF** switch to turn the unit **OFF**.

SELECTING THE OGM MODE 1 OR 2

Which message is played is depending on selection of the OGM 1 or 2.



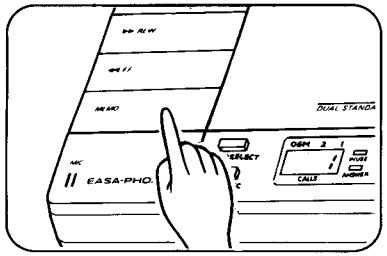
1 Push **OGM SELECT**.

- The selected OGM's indicator will flash at first, then switch to a steady light when the OGM tape is reset.

■ To prepare the ICM tape, refer to "AFTER LISTENING TO THE MESSAGES" on Operating Instructions.

RECORDING A PERSONAL MESSAGE (MESSAGE MEMO)

You may record a personal message any time at home on the ICM tape. It will be heard by anyone retrieving messages from the unit.

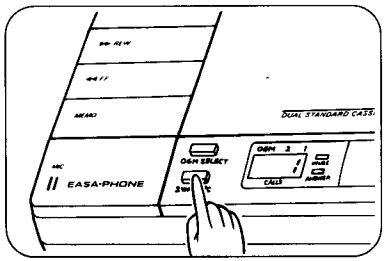


1 Push **MEMO** until a beep is heard.

- The number on the Call-Counter will increase by one.

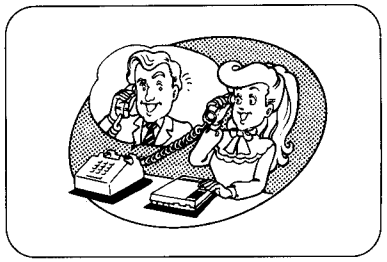
RECORDING A 2-WAY CONVERSATION (2-WAY RECORDING)

While speaking with someone on the telephone, you can record the conversation. However, many states have regulations in which 2-Way Telephone Conversations may be recorded, so you should first consult your public utilities agency before using this feature.



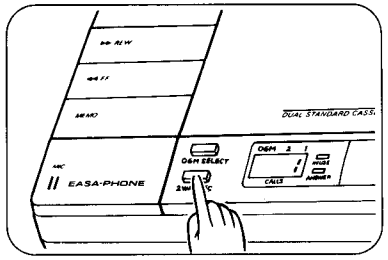
1 While having a conversation, push **2 WAY** until a beep is heard.

- The number on the Call-Counter will increase by one.
- The IN USE indicator will flash.
- The ANSWER indicator will light.



2 Take your conversation.

- A beep will sound every 15 seconds.

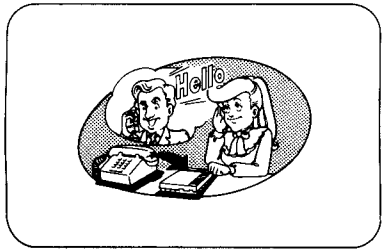


3 When recording is finished, push **2 WAY** again.

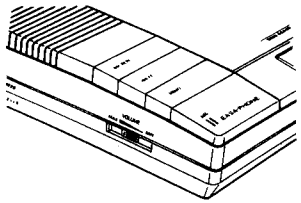
- The IN USE indicator will go out.
- The ANSWER indicator will flash to show that your conversation was recorded.
- The unit will be ready for recording incoming calls.

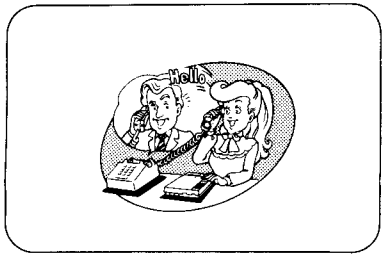
MONITORING THE INCOMING CALLS

While an Incoming Message is being recorded, you can monitor it. Then you may choose to lift the telephone handset and speak to the caller directly.



1 Adjust the VOLUME control.
(left side of your unit)



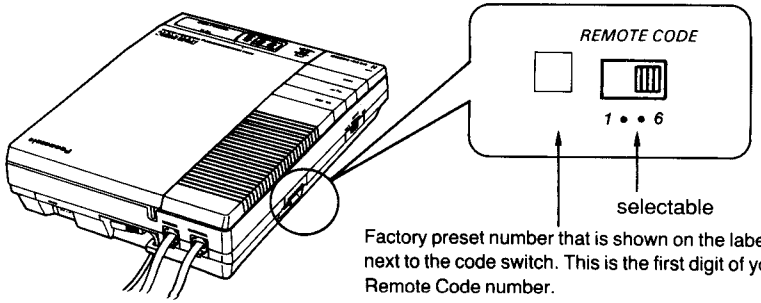


2 If you want to talk to the caller, lift the telephone handset and talk.

- The unit will automatically stop recording and will be ready for recording incoming messages.

SETTING THE REMOTE CODE

To get remote access, you must set and remember your remote code number.
The REMOTE CODE number is made up of 2 digits, the first digit is factory preset, and the second digit is selectable. ("1" or "6")

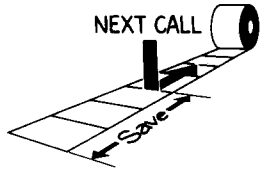


Factory preset number that is shown on the label next to the code switch. This is the first digit of your Remote Code number.

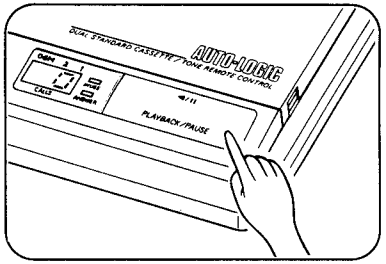
Example: If the factory preset number is "4", then your code number could be either "41" or "46" depending on the position of the REMOTE code switch.

SAVING THE RECORDED MESSAGES

You can save the desired messages.

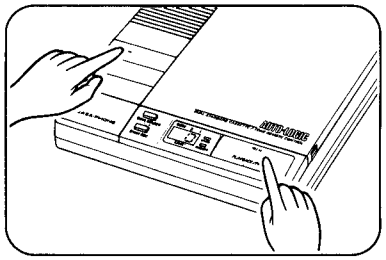


1 Play back the tape through the message you want to save.



2 Push **PLAYBACK/PAUSE** to pause.

- The IN USE indicator will flash.



3 Push **PLAYBACK/PAUSE** and **REW** simultaneously.

- The IN USE indicator will go out.
- The ANSWER indicator will light.
- The Call-Counter will show "0".

MC-Service

ORDER NO. KM49102474S1
F1

Service Manual

and Technical Guide

Telephone Equipment

KX-T1455

Supplement-2

AUTO-LOGIC™
EASA-PHONE®
AUTOMATIC TELEPHONE
ANSWERING SYSTEM

• Please use this manual together with the Service Manual for model No. KX-T1455, Order No. KM48905914C1.

CHANGES

Suffix G, H [8HAQG12345] ← Serial No. Label

	Suffix	The Reasons for Suffix Change
1	F → G	The main P.C.Board has been changed to comply with UL regulations.
2	G → H	The part no. has been temporarily changed because IC2 is hard to obtain.

Suffix	F	G	H
Main P.C.Board	~PQUP751XA	PQUP751WA~	
IC2 (Rec/Play)	AN6181NK		AN6180K (temporarily)

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PARTS COMPARISON TABLE

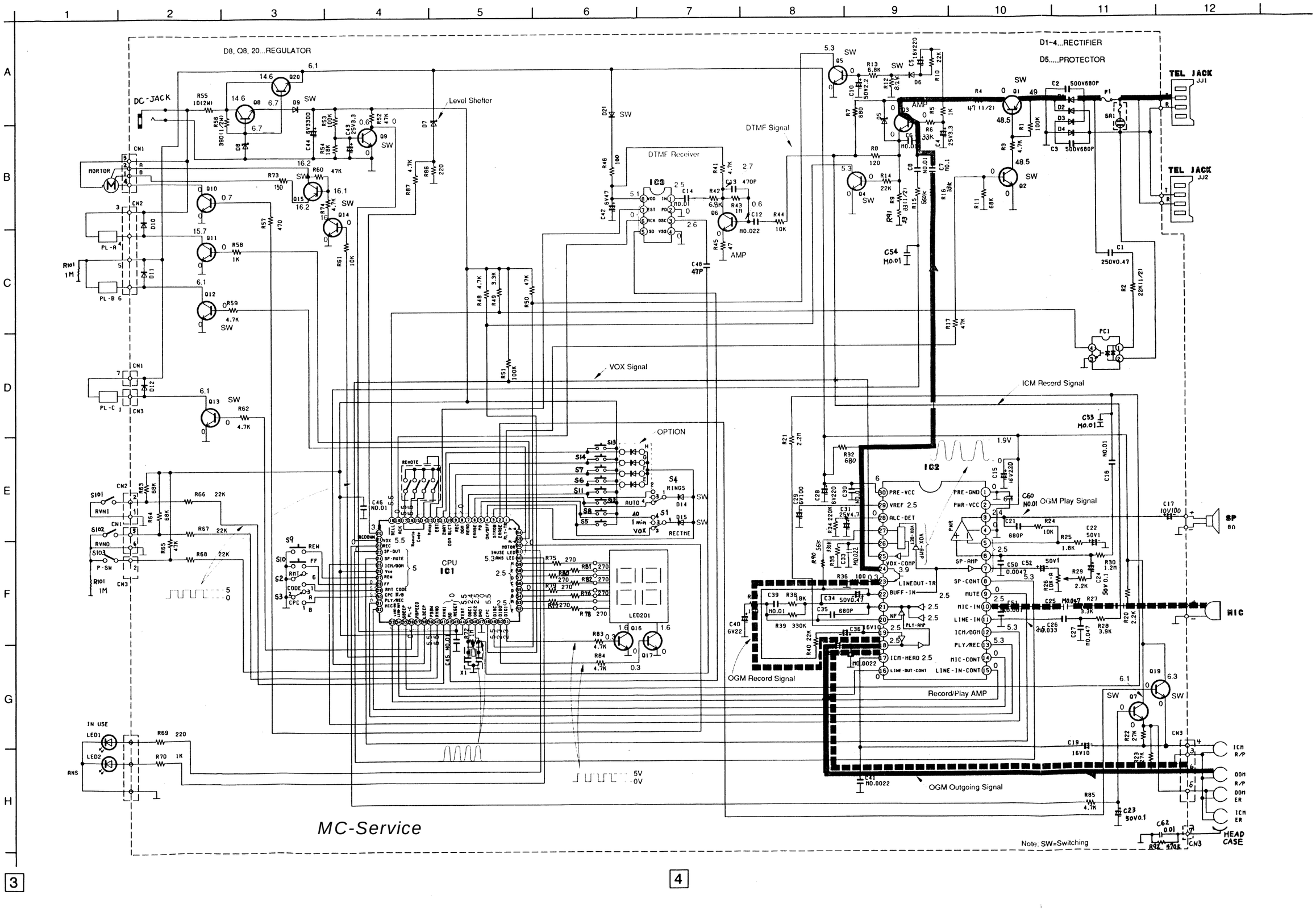
Reason for Change	*The circled item indicates the reason. If no marking, see the Notes in the bottom column.
1. Improve perfomance	
2. Change of material or dimension	
3. To meet approved specification	
4. Standardization	
5. Addition	
6. Deletion	
7. Correction	
8. Other	

Interchangeability Code	**The circled item indicates the interchangeability. If no marking, see the Notes in the bottom column.
Parts / Set Production	
A Original / New → Early / Late	Original or new parts may be used in early or late production set. Use original parts until exhausted, then stock new parts.
B Original → Early, New → Late	Original parts may be used in early production sets only. New parts may be used in early or production sets. Use original parts where possible, then stock new parts.
C Original → Early, New → Late	New parts only may be used in early or late production sets. Stock new parts.
D Original → Early, New → Late	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
E Other	

ef. No.	Part No. Original Part No.	Part No. New Part No.	Part Name & Description	Pcs/ Set	Remarks	Note 1	Note 2	Time of Change (Suffix)
IECHANICAL PARTS								
M1	PQJH1E6Z	**PQJH1E8Z**	R/P Head	2		1*	3D	G
M2	PQJH6E4Z	**PQJH6E7Z**	Erase Head	2		1*	3D	G
M21	PQFZ9910Z	**PQFZ9918Z**	Flexible P.C.Board Assembly	1		1*	3D	G
M21-3	PQRDS2TJ563	-------	Carbon Film Resistor, 56kΩ	0	Deletion	1*	6	G
M43	PQUP717Z	**PQUP963Z**	P.C.Board, OGM	1		1*	3B	G
M46	PQUP568Z	**PQUP962Z**	P.C.Board, ICM	1		1*	3B	G
M47	——	**PQHR322Z**	Isulator	2	Addition	1*	5	G
DIODES								
D1-4	PQVD1N4004	**PQVDSG5688G**	Diode (Si)	4			7	——
OTHERS								
SA1	PQVDSAE310F1	**PQVDDSV301LA**	Varistor (Surge Absorber)	1		1*	3B	G
F1	——	**PQBA1P02NMAL**	Fuse (125V, 200mA)	1	Addition	1*	5	G
CABINET PART								
K2	PQYF1038Y0	**PQYF1038L0**	Lower Cabinet Assembly	1		1*	3B	G
ELECTRICAL PART								
E9	PQWP1T1455M	**PQWPT1455M1**	P.C.Board Assembly (NLA)	1		1*	3B	G
ACCESSORY								
A2	PQJA59Y	**PQJA59V**	Telephone Cord	1		1*	3B	G
PACKING MATERIALS								
P1	PQPK771Z	**PQPK771Y**	Gift Box (Change 1)	1			1A	Mid of A
P1	PQPK771Y	**PQPK771X**	Gift Box (Change 2)	1			1A	Mid of G
RESISTORS								
R4	ERDS1TJ820	**ERDFS1TJ470**	Resistor, 47Ω	1		1*	3D	G
R6	ERD16TJ153	**ERD10TLJ333**	Resistor, 33kΩ	1		1*	3D	G
R9	ERDS1TJ680	**ERDFS1TJ330**	Resistor, 33Ω	1		1*	3D	G
R12	ERD16TJ103	**ERD10TLJ822**	Resistor, 8.2kΩ	1		1*	1D	G
R15	PQ4R18XJ474	**ERD10TLJ564**	Resistor, 560kΩ	1		1*	1D	G
R16	ERD10TLJ273	**ERD10TLJ333**	Resistor, 33kΩ	1		1*	3D	G
R18	PQ4R18XJ2R2	-------	Resistor, 2.2Ω	0	Deletion	2*	6	Mid of G
R42	PQ4R18XJ103	**ERD10TLJ682**	Resistor, 6.8kΩ	1		2*	1D	Mid of G
R91	——	**ERDFS1TJ330**	Resistor, 33Ω	1	Addition	1*	5	G
R92	——	**ERDFS1TJ474**	Resistor, 470kΩ	1	Addition	1*	5	G
CAPACITORS								
C14	ECFD1E223KD	**PQCBX1C103MY**	Capacitor, 0.01μF	1		2*	1D	Mid of G
C15	ECEA0JU331	**ECEA1CU221**	Capacitor, 220μF	1		2*	1D	Mid of G
C25	ECEA1HKSR47	**ECFD1E473KD**	Capacitor, 0.047μF	1		2*	1D	Mid of G
C47	ECUV1H103KB	-------	Capacitor, 0.01μF	0	Deletion	2*	6	Mid of G
C62	——	**ECKTAE103ZF**	Capacitor, 0.01μF	1	Addition	1*	5	G

lotes: 1. Part with mark 1* has been changed at the same time.
2. Part with mark 2* has been changed at the same time.

SCHEMATIC DIAGRAM



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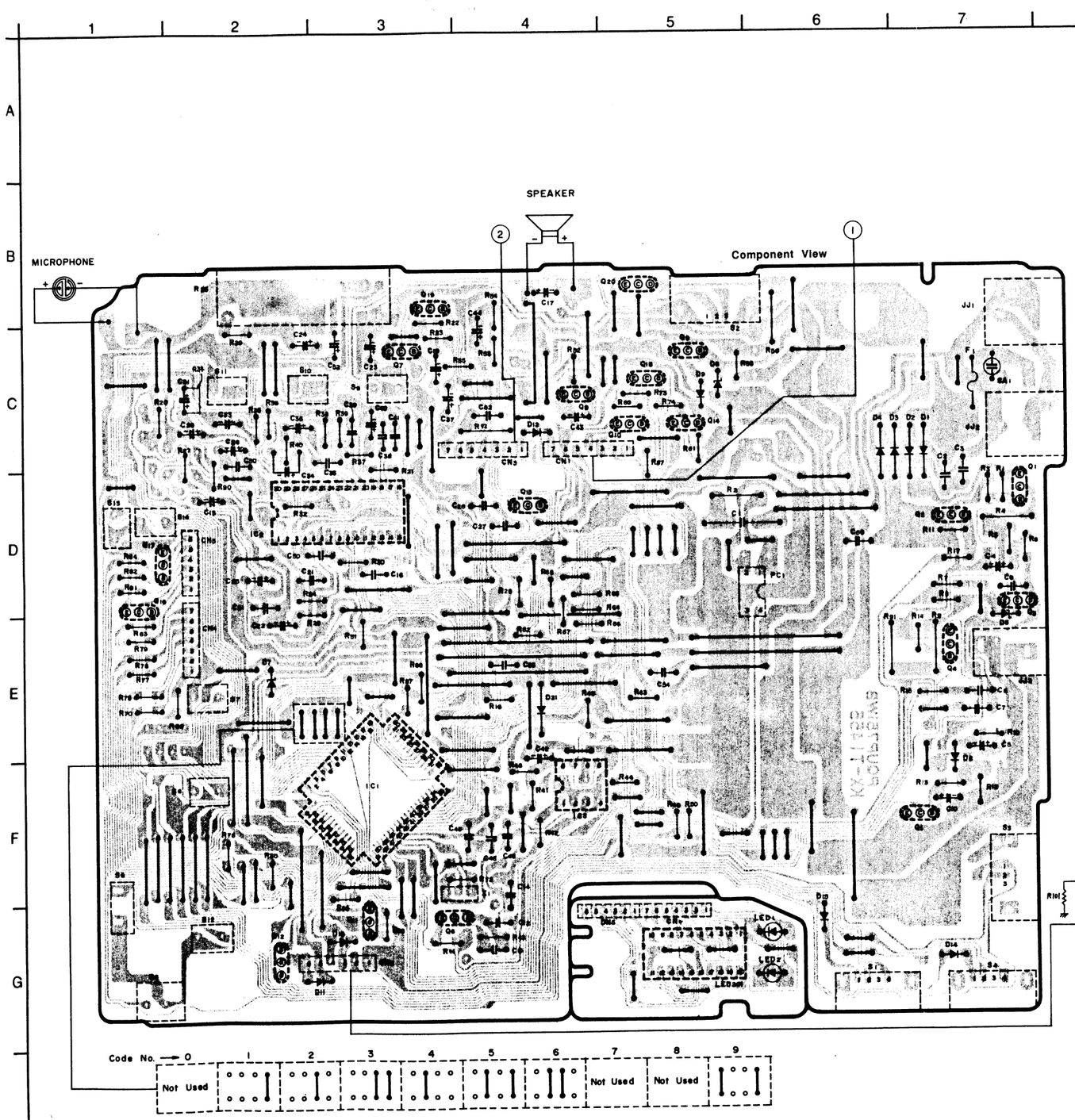
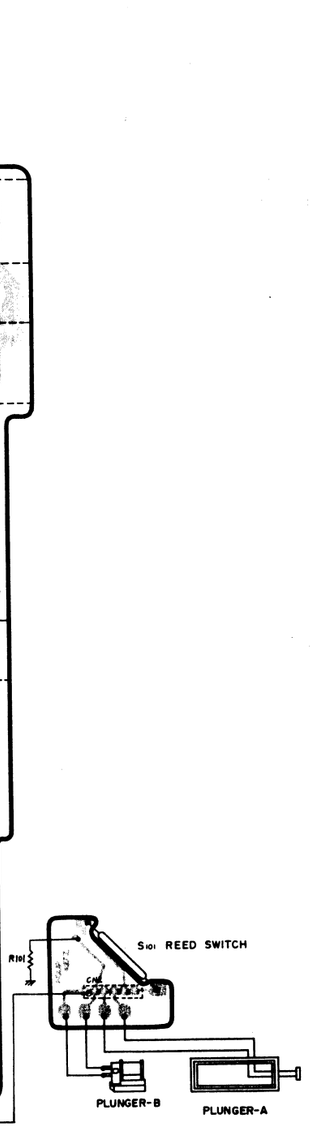
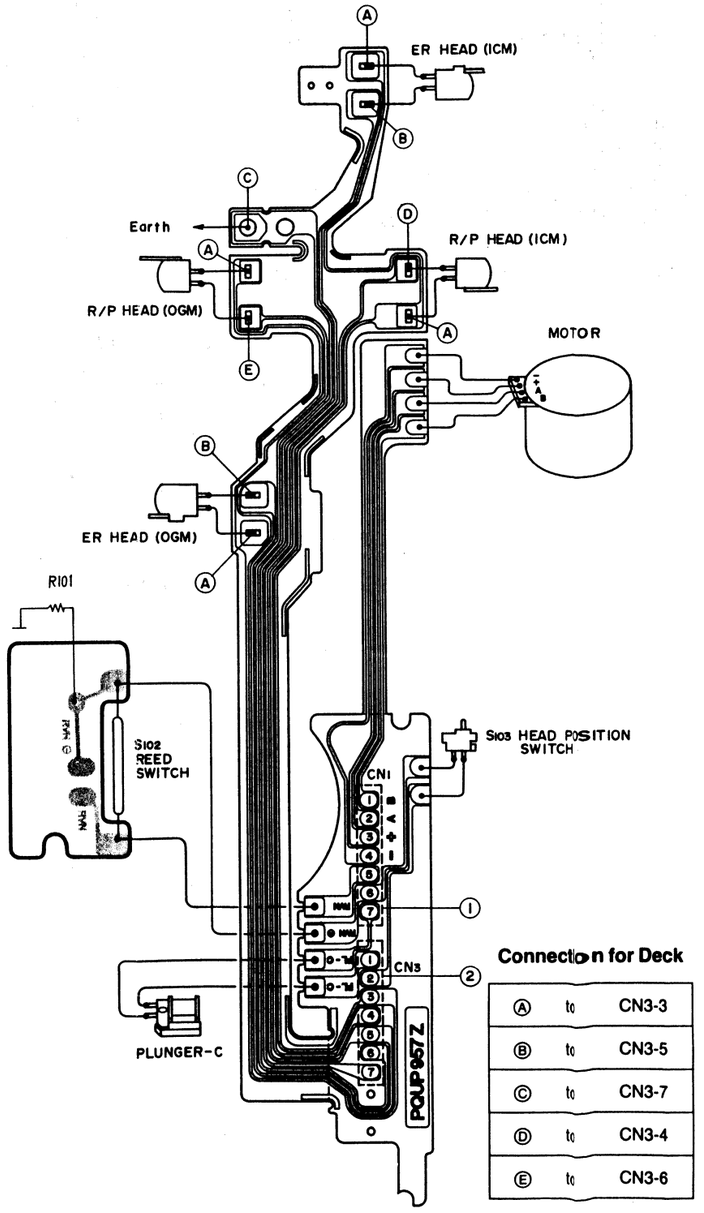
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM







Connection for Deck

Ⓐ	to	CN3-3
Ⓑ	to	CN3-5
Ⓒ	to	CN3-7
Ⓓ	to	CN3-4
Ⓔ	to	CN3-6

MC-Service

(P.C. Board PQUP 751WB type)

Note:
This circuit board may be modified at any time with the development of new technology.

ORDER NO. KM49011139S1
F1

Service Manual
and Technical Guide
Telephone Equipment

KX-T1455

Supplement-1

AUTO·LOGIC™
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AUTOMATIC TELEPHONE
ANSWERING SYSTEM

• Please use this manual together with the service manual for model No. KX-T1455, Order No. KM48905914C1.

CHANGES

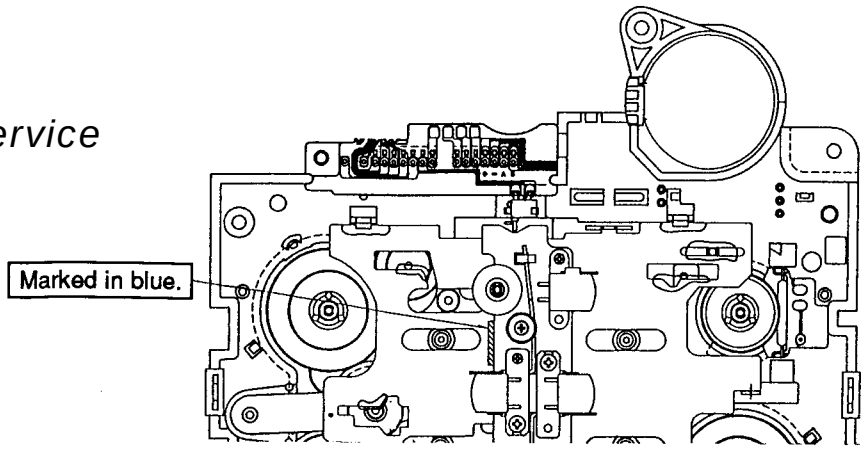
(for example)

Suffix B 8HAQB12345 ← Serial No.

Subject: 1.The part no. of IC1 has been changed, because the sub P.C.board assembly was deleted.
2. Deleted the capacitor C9 (0.022μ), to improve the VOX sensitivity.
3. Added the capacitor C60 (0.01μ), to modify the radio interference problem.
4. The part no. of IC2 has been changed for cost down.
5. Deck assembly has been changed, side of head base assembly was improved.

Suffix	A	B	C	D	E	F
Sub P.C.Board Part No.	PQUP801ZA	———				
IC1(CPU)	PQVI4042FJ91	PQV14042FK10				
C9 (Capacitor)	ECFD1E223KD		———			
C60 (Capacitor)	———			PQCBC1C103MY		
IC2 (Rec/Play amp)	AN6180K				AN6181NK	
Deck Assembly	No marking on deck assembly in blue.					Marked the deck assembly in blue.

MC-Service



(Deck assembly)

Panasonic

Matsushita Services Company
Division of Matsushita Electric
Corporation of America
50 Medowland Parkway,
Secaucus, New Jersey 07094

Matsushita Electric
of Canada Limited
5770 Ambler Drive, Mississauga,
Ontario, L4W2T3

Panasonic Sales Company,
Division of Matsushita Electric
of Puerto Rico, Inc.
San Gabriel Industrial Park
65th Infantry Ave. Km.9.5
Carolina, Puerto Rico 00630

■ PARTS COMPARISON TABLE

Reason for Change	*The cicrled item indicates the reason. If no marking, see the Notes in the bottom column.
1. Improve perfomance	
2. Change of material or dimension	
3. To meet approved specification	
4. Standardization	
5. Addition	
6. Deletion	
7. Correction	
8. Other	

Interchangeability Code	**The circuled item Indicates the interchangeability. If no marking, see the Notes in the bottom column.
Parts / Set Production	
A Original / New → Early / Late	Original or new parts may be used in early or late production set. Use original parts until exhausted, then stock new parts.
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D Original / New → Early / Late	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
E Other	

Ref. No.	Part No.		Part Name & Description	Pcs/ Set	Remarks	Note 1	Note 2
	Original Part No.	New Part No.					
Mechanical Parts							
M7	PQFD9914Z	**PQFD9914Y**	Operation Plate	1			1A
M11	PQFI1004Z	**PQFI1007Z**	Pinch Roller (ICM)	2			8A
M16-1	PQFN50Z	**PQFN12Z**	Washer	3			1C
M17	PQFD9908Z	**PQFD9908Y**	F/R Lever Assembly	1		1*	2A
M18	PQFR9918Z	**PQFR9918Y**	Play Arm Assembly	2			1C
M19	PQFQ9904Z	**PQFQ9904Y**	F/R Pulley Assembly	1		1*	2A
M22	PQFC9910Z	**PQFC9912Z**	Mechanism Base Assembly	1			4A
M32	PQFS117Z	**PQFS117Y**	Spring	1			1A
M49	PQFS125Y	**PQFS126Z**	Spring	1			1B
Integrated Circuits, Transistors and Diodes							
IC1	PQVI4042FJ91	**PQVI4042FK10**	IC	1		2*	1C
IC2	AN6180K	**AN6181NK**	IC	1		4*	1D
IC201	PQVITC4040BF	-------	IC	0	Deletion	2*	6
IC202	PQVITC4001BF	-------	IC	0	Deletion	2*	6
IC203	PQVINJ4069BM	-------	IC	0	Deletion	2*	6
Q201	2SC1623	-------	Transistor (Si)	0	Deletion	2*	6
D12	1S2076	**1SS119**	Diode (Si)	1			1C
D201, 204	MA151WK	-------	Diode (Si)	0	Deletion	2*	6
D202, 203	MA151K	-------	Diode (Si)	0	Deletion	2*	6
Cabinet Parts							
K7	PQGP87Y	**PQGP87V**	LED Panel	1		3*	1D
K8	PQGP101Z	-------	Smoke Panel	0	Deletion	3*	6
K12	PQHR9309Z	-------	LED Holder	0	Deletion		6
Electrical Parts							
E8	PQJE91Z	-------	Connector (CN6)	0	Deletion		6
E9	PQWP2T1455M	**PQWP1T1455M**	Main, P. C. B. Aseembly (NLA)	1			7
E10	PQWP2T1455M	-------	Sub, P.C. B. Assembly (NLA)	0	Deletion	2*	6
Resistors							
R15	PQ4R18XJ334	**PQ4R18XJ474**	Resistors, 470KΩ	1			1B
R16	PQ4R18XJ473	**ERD10TLJ273**	Resistors, 27KΩ	1		4*	1D
R19	PQ4R18XJ272	-------	Resistors, 2.7KΩ	0	Deletion		6
R31	ERD16TJ121	-------	Resistors, 120Ω	0	Deletion		6
R32	PQ4R18XJ122	**ERD10TLJ681**	Resistors, 680Ω	1		4*	1D
R33	PQ4R18XJ183	-------	Resistors, 18KΩ	0	Deletion		6
R35	ERD16TJ563	**ERDS2TJ334**	Resistors, 330KΩ	1		4*	1D
R46	ERD16TJ101	**PQ4R18XJ101**	Resistors, 100Ω	1			1B
R90	------	**ERDS2TJ563**	Resistors, 56KΩ	1	Addition	4*	5

Ref. No.	Part No.		Part Name & Description	Pcs/ Set	Remarks	Note 1	Note 2
	Original Part No.	New Part No.					
R201	PQ4R10XJ473	-------	Resistors, 47KΩ	0	Deletion	2*	6
R202	PQ4R18XJ223	-------	Resistors, 22KΩ	0	Deletion	2*	6
R203	PQ4R10XJ274	-------	Resistors, 270KΩ	0	Deletion	2*	6
R204	PQ4R10XJ103	-------	Resistors, 10KΩ	0	Deletion	2*	6
R206	PQ4R10XJ473	-------	Resistors, 47KΩ	0	Deletion	2*	6
Capacitors							
C9	ECFD1E223KD	-------	Capacitor, 0.022μF	0	Deletion		6
C11	ECEA1EK470	-------	Capacitor, 47μF	0	Deletion		6
C17	ECEA0JK221	**ECEA1AU101**	Capacitor, 100μF	1			1A
C18	ECEA1CKS470	-------	Capacitor, 47μF	0	Deletion		6
C32	ECEA1HKS4R7	-------	Capacitor, 4.7μF	0	Deletion		6
C33	ECEA1HKSR22	**ECFD1E223KD**	Capacitor, 0.022μF	1		4*	1D
C49	ECUV1H103KB	-------	Capacitor, 0.01μF	0	Deletion		6
C60	-----	**PQCBC1C103MY**	Capacitor, 0.01μF	1	Addition		5
C201	PQCUV1H103KB	-------	Capacitor, 0.01μF	0	Deletion	2*	6
C201	PQCUV1H102J	-------	Capacitor, 0.001μF	0	Deletion	2*	6

Note: 1. Parts of 1* marks has been changed at the same times.
2. Parts of 2* marks has been changed at the same times.
3. Parts of 3* marks has been changed at the same times.
4. Parts of 4* marks has been changed at the same times.

■ CPU DATA (page 4)

IC1: PQVI4042FJ91 ➡ **IC1: PQVI4042FK10**

(The contents of data do not change.)

(Original) (Supplement-1)

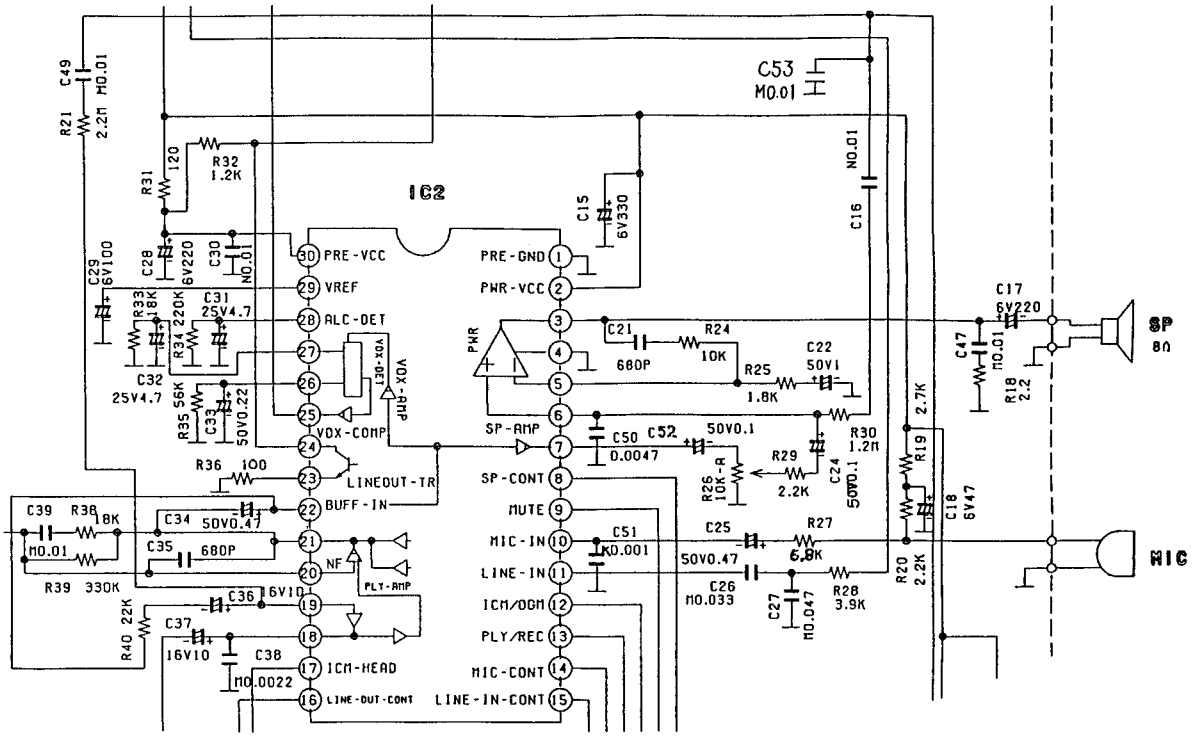
Can't be supplied the Sub P.C.Board Assembly

The Measure is as follows:

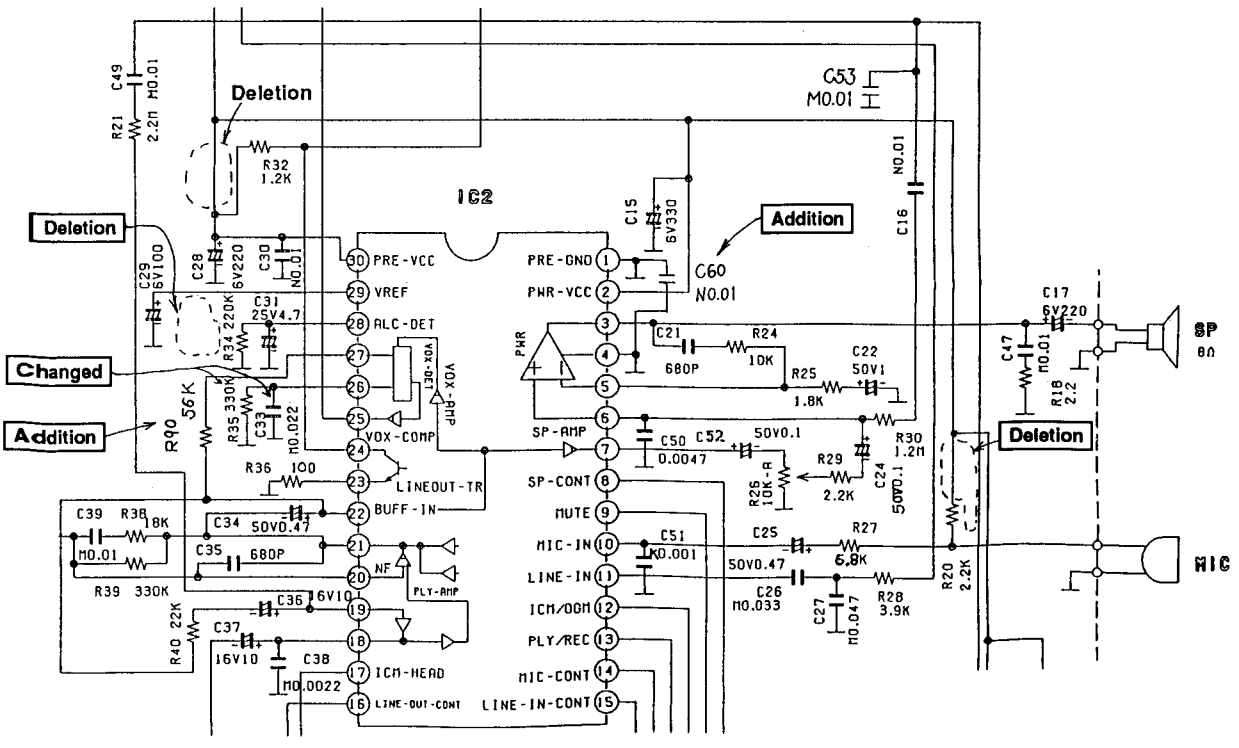
When removing the Sub P.C.Board Assembly, replace the IC1 (CPU) from old part (PQVI4042FJ91) to new part (PQVI4042FK10).

MC-Service

■ SCHEMATIC DIAGRAM (pages 9 and 10)



(Original)

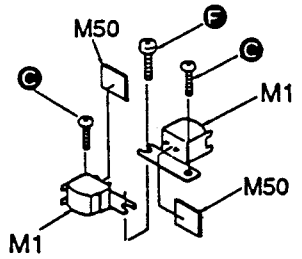


(Supplement-1)

When IC2 is AN6180K, it uses these parts.

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks	Time of Change(Suffix)
INTEGRATED CIRCUIT					
IC 2	AN6180K	IC	1		H
RESISTORS					
R16	ERD10TLJ473	Resistor, 47kΩ	1		H
R19	ERD10TLJ272	Resistor, 2.7kΩ	1		H
R31	ERDS2TJ121	Resistor, 120Ω	1		H
R32	ERD10TLJ122	Resistor, 1.2kΩ	1		H
R33	ERD10TLJ183	Resistor, 18kΩ	1		H
R35	ERDS2TJ563	Resistor, 56kΩ	1		H
R91	Not Used		0		H
CAPACITORS					
C18	ECEA1CKS470	Capacitor, 47μF	1		H
C32	ECEA1EU4R7	Capacitor, 4.7μF	1		H
C33	ECEA1HKSR22	Capacitor, 0.22μF	1		H

■ MECHANICAL PARTS LOCATION (Page 33)



(Supplement-2)

MC-Service